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**Genius is thunder  
and sunshine at the same time.**

# **Genius and Insanity**

A collection of puzzles for fun-loving people

## **About the author**

Maria Claudia Faverio is a translator and a writer with a passion for poems and puzzles. She is a member of 40 High-IQ Societies, among which Ludomind, a High-IQ Society for puzzle lovers. Some of her societies are mentioned in the puzzles.

Maria is also the co-author of the CIAT (Cerebrals Intelligence and Achievement Tests Battery) and of the Fourth International Contest of logical problems (organised by the Ludomind society).

She dedicates this book to all people who believe in the wonderful power of intelligence and creativity.

## *Preface*

### **Preface**

Most of the puzzles presented in this book can be solved by anyone by simple reasoning and logic. For most of them you will not need any particular mathematical knowledge (although high-school level, in particular algebra, may come in handy), but only a passion for puzzles, games and extravagance.

Of course there are some oldies, like the problem of the average. Why withhold the best puzzles from the reader only because they are old chestnuts? But I can assure that their content is absolutely new.

As I am well aware of the fact that my readers are individuals with different tastes, I have divided my book into different sections containing different kinds of puzzles.

The first collection of puzzles, “Genius and Insanity”, is the collection to which this book owes its title. It is a collection of logical puzzles, whose background is the Blue Planet, a planet in another galaxy on which Shane lands on his extragalactic travels in search of the elixir of eternal youth. It is a planet inhabited by sane geniuses, insane geniuses and normals (not

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much different from the earth, you will probably think, but you will see very soon in what way it is different). He is here confronted by the Master of the Universe, who challenges him with a series of puzzles.

The next two series of puzzles are puzzles of different kinds, with a touch of humour (smile when you puzzle!): “More Puzzles” and “Brain-Teasers”. The second series contains more difficult puzzles, but the puzzles contained in each series are not necessarily graded according to their difficulty. Please don’t despair when trying to solve the brain-teasers. They sound more difficult than they really are! Organize yourself with a cell chart, pencil and eraser, and I’m sure you’ll enjoy them.

The “Odd one out” is obviously a series of quizzes in which you have to find the “odd one out”. It is divided into three parts: in the first part the odd one out is a word, in the second part a diagram, and in the third one a number.

If you enjoyed the last part of the “odd one out”, you’ll probably also enjoy the next two series, “Numbers, numbers, numbers” and “Phone numbers”.

In “Numbers, numbers, numbers”, you simply

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have to find out the mechanism behind a sequence of numbers, and the next number in the sequence.

In “Phone numbers” you have to find out a series of phone numbers on the basis of some clues you are presented with.

In case you don’t like numbers, I hope you can have more fun with “Crosswords” and “Words, words, words”.

In “Crosswords”, you have to fill the grid of squares with words from a particular field, e.g. “philosophy”. You are not given any clues, as you already know the field, but some squares are already filled with letters.

“Words, words, words” is designed to test your general knowledge of words: what they mean (in case they are difficult words), where they come from, and when they were first used. Do you know for example the origin of “origin”?

Finally, in the last series of puzzles, I present you with “culture-fair tests”, a series of puzzles that can be enjoyed by everyone, even by people who otherwise are not too keen on numbers or words. They are called “culture-fair” because you don’t need to belong to any particular

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culture in order to solve them. You only need your brains! In this series of puzzles, you usually have to complete a series according to some logical principle.

The solutions are ordered at random so that the reader cannot see the next solution when he looks up one.

As you can see, there is really something for everyone. *Chacun a son goût!* Enjoy yourself!

## **Genius and Insanity**

There is a blue shimmering planet about 7 billion and 7 light-years from the Earth, inhabited by bizarre creatures: insane geniuses (blue creatures), who sometimes tell the truth and sometimes lie, normals (yellow), who always lie, and sane geniuses (green), who always tell the truth. Unfortunately, the Master of the Universe is a joker who arbitrarily changes their colours according to his mood. That is to say, a creature that looks green can but must not be really green. The same applies to the other colours, of course.

Shane, an astronaut travelling through the universe in search of the elixir of eternal youth, decides to take a break on the Blue Planet, which really looks mesmerizing from his spaceship. As soon as he sets foot on it, the Master of the Universe appears, all wrapped in a pink cloud, and tells him he will be his prisoner until he has solved the seven puzzles he is going to pose. He explains to him the meaning of the colours of the creatures of the Blue Planet and that he changes their colours according to his mood, so that their colour might not correspond to their real nature. Then



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he grins and poses the first puzzle<sup>1</sup>, specifying that in each of the puzzles he is going to pose there is always only one insane genius, one sane genius and one normal.

\* There are three creatures, A, B and C, who make the following statements:<sup>2</sup>

A: I am blue.

B: I am green if A is a normal.

C: I am yellow and A's statement is true.

*Who is what?* **(A1 p.112)**

\* This time the creatures make the following statements:

A: B's statement is true.

B: I am a normal.

C: I am a sane genius if B is not a normal.

*Who is what?* **(A2 p.147)**

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1 Please note that in order to solve the following puzzles you have to proceed by elimination, that is to say you have to find the only possible solution. This is called "contradiction method": you must first assume that a particular fact is true, then you must check this assumption against the given facts, and go on like that until you find no contradiction. In the solutions, I will show all contradictions before I come to the only possible solution.

2 Please note that in logic, whenever an "if"-statement is false, the "if-then" statement is true regardless of whether the "then" statement is true. If the "if" statement is true, however, then the "if-then" statement is true only if the "then" statement is true. Conversely, "A is true and B is true" is true only when A and B are both true, but is a false statement if either A or B is false.

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\* Winter is approaching on the Blue Planet, and our astronaut has still five puzzles to solve before he can go home (without the elixir of eternal youth, by the way).

A says: B is a normal.

B says: A's statement is true.

C says: B's statement is false.

*Who is what?* **(A3 p.134)**

\* Three new creatures approach Shane.

A says: B is a normal if I am a sane genius.

B says: A's and C's statements are both false.

C says: A is green.

*Who is what?* **(A4 p.162)**

\* Another three days of magic and fear go by, and Shane is wondering whether the Master of the Universe has forgotten him, when he hears a roar of laughter behind him (the Master of the Universe can read the mind). "No, I have not forgotten you. But you really looked tired, and I wanted to give you a rest. Never mind. Here is your next riddle."

A says: B is yellow.

B says: C is green.

C says: A is blue.

*Who is what?* **(A5 p.138)**

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\* Two more puzzles and Shane will be free. Wish him good luck with the next one.<sup>3</sup>

A says: B's statement or C's statement is true.

B says: A is a normal if C is a sane genius.

C says: A's statement is true.

*Who is what? (A6 p.118)*

\* Shane has to solve his last puzzle. After about 70 minutes of extragalactic morning gymnastics, he calls the Master of the Universe himself. "I am ready for the last puzzle", he announces with an air of triumph. "Here it is, my dear friend", answers the Master of the Universe.

A says: B is telling the truth if C is telling the truth.

B says: I am a sane genius.

C says: A is the only one who is telling the truth.

*Who is what? (A7 p.125)*

The puzzles are over at last, but Shane doesn't seem too eager to go back to the earth any

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3 Please note that in logic the statement "A is true or B is true" is true if at least one, and possibly both, of A and B are true. On the other hand, the statement "A is true or B is true" is false if both A and B are false.

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more, although he has solved them all. His skin has slowly turned blue, and he has become an insane genius himself! In the end, he decides to stay on the Blue Planet forever, but he promises his family on the earth in an intergalactic e-mail that he will visit them from time to time. The question is: is he telling the truth???

Whether he is telling the truth or not, the Master of the Universe has changed his mind. Now he wants Shane to leave. He can stay only if he solves seven new puzzles. In these new puzzles, insane geniuses sometimes tell the truth, sometimes lie at full moon (yes, the Blue Planet also has a moon), sometimes tell the truth, sometimes lie at new moon; sane geniuses tell the truth at full moon and lie at new moon; normals lie at full moon and tell the truth at new moon.

❖ Shane accepts the challenge and is ready for the first puzzle, in which three creatures (A, B and C) make the following statements:

A: I am an insane genius if it is full moon.

B: A's statement is false if C's statement is false.

C: B is lying.

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*Is it full moon or new moon, and who is what?*

**(A8 p.168)**

❖ In the second puzzle, three new creatures (A, B and C) approach Shane and make the following statements:

A: C's statement is true if it is full moon.

B: It is new moon.

C: I am a sane genius.

*Is it full moon or new moon, and who is what?*

**(A9 p.141)**

❖ Instead of being tired, Shane is more and more delighted and welcomes the third puzzle with a smile. The three new creatures make the following statements:

A: It's new moon and C's statement is true.

B: It's new moon and A is an insane genius if C's statement is false.

C: A's and B's statements are both false and I am not an insane genius.

*Is it full moon or new moon, and who is what?*

**(A10 p.131)**

❖ "Are you ready for the fourth puzzle?", asks the Master of the Universe in a thundering voice. "You don't have to ask me. Every new puzzle is a new joy in my life", answers Shane.

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“I have discovered the secret of real happiness.”  
Does this new puzzle make you as happy as it did Shane?

A says: I am a normal and C is lying.

B says: A is lying and C is telling the truth.

C says: I am a sane genius and it is new moon.

*Is it full moon or new moon, and who is what?*

**(A11 p.109)**

❖ It's 2am on the Blue Planet. Shane is studying a new constellation in the Galaxy of Ambrosia, when he is approached by the Master of the Universe, or to be precise, by a sapphire cloud enshrouding the Master of the Universe. “Your next puzzle”, roars the Master, who doesn't seem to be in a talkative mood this night.

A says: B is a normal or C is telling the truth.

B says: It is new moon.

C says: B is telling the truth.

*Is it full moon or new moon, and who is what?*

**(A12 p.155)**

❖ Before the next puzzle, the Master of the Universe offers Shane a drink containing a potion that should make Shane sleepy, but

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Shane is too sly to accept it and is ready for the next challenge.

A says: B is a normal and it is new moon.

B says: A is a normal and it is full moon.

C says: It is full moon and A is a sane genius.

*Is it full moon or new moon, and who is what?*

**(A13 p.121)**

❖ “Your last puzzle, Shane!” “What? I can’t believe it... I have just started! I...” “Hush! Pay attention instead of speaking!”, shouts the Master of the Universe. “I have been very generous this time, as I begin to enjoy your company. Your last puzzle is one of the easiest.”

A says: B is a normal if it is full moon.

B says: It is new moon.

C says: B is telling the truth.

*Is it full moon or new moon, and who is what?*

**(A14 p.151)**

❖ Believe it or not, Shane solved all puzzles without the least difficulty, utterly enjoying the extraterrestrial challenge. On the other hand, he began to miss his family, to whom he was anxious to tell everything about the Blue Planet and the puzzles. So he told the Master of the

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Universe that he was going to leave very soon, thanking him for his hospitality. But the Master of the Universe had changed his mind again. “My dear Shane”, he announced, “I begin to enjoy your company, and I cannot let you go without challenging you with a new series of puzzles. If you solve the next seven puzzles, I swear I will let you go back to your bizarre planet, and I will even keep in touch with you through intergalactic snail mail or e-mail. You have my word. Take a deep breath and prepare for your next challenge. The puzzles I am going to ask you to solve now are different from the ones you are accustomed to. Here is your first puzzle. Can you see those two spaceships?

There are two signs attached to them: one is true and one is false. There can be a key or a black hole behind the signs attached to the spaceships, and it is possible that there are two keys or two black holes. If you open the door of the spaceship behind which is a black hole, you will be sucked into it and disintegrated. Read the signs carefully before you decide which spaceship you choose.”



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**A**

There is a key behind  
the door of this  
spaceship.  
The other spaceship  
conceals a black hole.

**B**

In one of these  
spaceships there is a  
key, the other conceals  
a black hole.

*Which spaceship conceals what?*

**(A15 p.137)**

▲ Of course Shane solved this puzzle in a trice (it's really easy, isn't it?) and was ready for the second one without even taking a short break. The Master explained that the conditions were the same as in the first case, with the exception that this time the signs were either both true or both false.

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**A**

At least one spaceship  
contains a key.

**B**

The other spaceship  
conceals a black hole.

*Which spaceship conceals what?*

**(A16 p.108)**

▲ “Shane, you are very smart”, thundered the Master of the Universe, after Shane solved this puzzle eating his breakfast, “but please be aware that the remaining puzzles are much more difficult and you could be sucked into a black hole, if you make the least mistake.” “I know!”, laughed Shane. “Please go on! The next puzzle, the next puzzle!”

“Here it is, Shane! Let me explain the new conditions to you. Again, there are two spaceships in front of you. If the left-hand spaceship contains a key, then the sign on its door is true, but if it conceals a black hole, then

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the sign is false. In the right-hand spaceship, the situation is the opposite. If there is a key in it, the sign on its door is false, if there is a black hole behind its door, the sign is true. Again it is possible that there are two keys or two black holes, and it can also be that both signs are true or false. So.... If you don't trust your luck..." "I do, I do!", reassured Shane.

▲ "OK, here are the two spaceships and the two signs!"

**A**

At least one spaceship contains a key.

**B**

There is a key in the other spaceship.

*Which spaceship conceals what? (A17 p.140)*

▲ "The next one is tricky, Shane!", roars the Master of the Universe gloating. "Do you really

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wish to continue?” “Please, don’t ask unnecessary questions!”, laughs Shane, sitting in lotus position on a blue stone of the Blue Planet.

“Well, this time the signs are not attached to the spaceships because you have to find out their positions yourself in order to determine what the spaceships conceal. The conditions are the same as in the previous puzzle.” “No worries”, reassures Shane.

**A**

This spaceship  
conceals a black  
hole.

**B**

Both spaceships  
conceal black holes.

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*Which spaceship conceals what?*

**(A18 p.165)**

▲ “Shane, you truly astonish me. You are the smartest prisoner I’ve ever had. But you are not free yet. And the last three trials are tougher than you think. Much tougher.” “The tougher, the better”, answers Shane, sipping an extragalactic punch. “OK. There are three signs now, Shane. Behind a door is a key, behind the other two are two black holes. At most one of the signs is true.”

**A**

**B**

**C**

This spaceship conceals a black hole.	There is a key in this spaceship.	There is a black hole behind the door of spaceship B.
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*Which spaceship conceals what?* **(A19 p.115)**

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▲ “Shane, if you solve the last two puzzles, I will not only let you go, but make you my successor. Please be extremely cautious, as I wouldn’t like to see you torn apart in a black hole. Again, you have to choose among three signs. Again, there are two black holes and a key. The sign on the door of the spaceship containing the key is true, at least one of the other two is false.”

**A**

**B**

**C**

Spaceship B conceals a black hole.	This spaceship conceals a black hole.	Spaceship A conceals a black hole.
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*Which spaceship conceals what?*

**(A20 p.122)**

▲ “Shane, your trials are almost over.” “Trials? I’ve never had so much fun in my whole life!” “I’m glad to hear that, Shane. Solve this puzzle and you will be free, and one day (as late as

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possible, I hope) you will be my successor. And you don't even have to leave your bizarre planet in order to be my successor, as I will put a special spaceship at your disposal, with which you can "commute" between the Earth and the Blue Planet in just a couple of hours. So please concentrate and don't ruin everything now. Again, we have three signs and three spaceships. One spaceship conceals a key, one a black hole, and one is empty. The sign on the spaceship containing a key is true, the sign on the spaceship concealing a black hole is false, and the sign on the empty spaceship can be either true or false. Good luck!"

**A**

**B**

**C**

Spaceship C is empty.	Spaceship A conceals a black hole.	This spaceship is empty.
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*Which spaceship conceals what?*

**(A21 p.154)**

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Shane solved all puzzles to the Master's complete satisfaction – a feat never accomplished before. He is now writing his memoirs, “Genius and Insanity”, a book that promises to be a bestseller. He regularly visits the Blue Planet and the Master of the Universe, who retired after all his puzzles had been solved. He lives in a blue house with a blue front yard and is writing a new series of puzzles on Shane's request. He has given up any form of aggressiveness and is now dedicating himself to the establishment of world peace.



**More puzzles** <sup>4</sup>

◇ If Priscilla is 16 and four times as old as her little sister Kelly, *how old will she be when she is three times as old as Kelly?* **(A22 p.161)**

◇ Annette, Barbara and Cecilia are three friends. Annette is two years older than Barbara, and in three years Cecilia will be as old as Annette is now. Together they are 40 years old.

*How old are they?* **(A23 p.104)**

◇ Donna's father is as old as his wife and four times as old as Donna. If the square root of the sum of their ages (Donna's and her parents') is Donna's age, *how old are they?* **(A24 p.125)**

◇ If all insane geniuses are eccentric, and some eccentric people are poor, *is it true that some insane geniuses are definitely poor?*

**(A25 p.151)**

◇ A star called Andropeia at a distance of about 30,000,000 light-years from the Earth, exploded 7,000 years ago. *How far is it from the Earth now?* **(A26 p.164)**

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<sup>4</sup> I will only explain the most difficult puzzles in detail.

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◇ Taros, especially their roots, can be eaten, but they don't smell like the flowers you have to guess. **(A27 p.146)**

◇ Diana took a giant pea, chopped it and ate it with some cheese. *Where is the fruit?*

**(A28 p.134)**

◇ Don viii vii Ps at the C. *Can you decipher this message?* **(A29 p.108)**

◇ My first is last, my last first, my third second, and the sum of my second and fourth, my first minus my last and third. *What am I?*

**(A30 p.141)**

◇ Jennifer is half as old as her sister, who is  $\frac{1}{3}$  the age of her father plus  $\frac{1}{7}$  the age of her mother. Her mother is  $\frac{2}{3}$  the age of her father. All together they are 97. *Can you determine their respective ages?* **(A31 p.160)**

◇ *What does PZOVRLWLHXLKRX mean?*

**(A32 p.129)**

◇ *And FDZFXBRBBBN?* **(A33 p.147)**

◇ *And DIERURYSW?* **(A34 p.103)**

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◇ *And GQYYZCP?* **(A35 p.120)**

◇ If MUM is NYV, what is DAD? **(A36 p.145)**

◇ A drunkard totters along a country road at 0.5 km/h. At the other end of the road, a dog starts running towards him at 7 km/h. *How far will they be from each other one hour before they meet (if the drunkard doesn't collapse before)?*

**(A37 p.133)**

◇ Full moon. A wolf howls 5 times in 20 seconds at regular intervals.

*How many times does it howl in one minute?*

**(A38 p.163)**

◇ An insane genius has created a dog that duplicates every time it barks. That is to say, after he barks once, there are two dogs. If each of these two dogs barks once, there will soon be four dogs, and so on.

*How many times has the first dog duplicated when the outraged neighbours hear about 1,000 dogs barking (1,024 to be accurate) and call the police?* **(A39 p.123)**

◇ On the Blue Planet, which we already know, cows and bulls can be of three colours: blue,

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red and violet. Shane (whom we already know too) meets three couples in love. A violet cow ruminating near a red bull observes with a deep moo that no cow is with a bull of the same colour (and vice versa, of course).

*Can you tell the colour of the partner of the red cow? (A40 p.139)*

◇ An Aussie battler goes to work every morning by car. One morning his old car breaks down after  $3/4$  of the usual route. He finishes on foot, spending three times as long walking as by car (his car is really slow...). *How many times as fast is his old car? (A41 p.106)*

◇ Jennifer has an old watch that runs 12 minutes slow every day. She sets it right on Monday at noon. If now is Thursday 12 noon, *when will Jennifer's watch show Thursday 12 noon? (A42 p.135)*

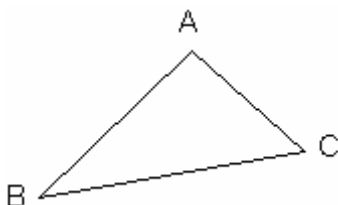
◇ Although snails are hermaphrodites, they also fall in love... And on Valentine's Day Craig wanted to surprise its Sweetheart.

Unfortunately, its Sweetheart lived on a 7 m high stone and it was a lousy rainy day, so Craig had to make a terrible effort to reach the

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top of the stone. Every time it crawled 7 cm forward, it slipped back 3 cm because of the rain. *How long did Craig take to reach the top of the stone, knowing that it crawled at a speed of 1 cm/sec?* **(A43 p.141)**

◇ A butterfly in love flies from flower to flower in a country field. If it follows the pattern shown in ABC, flying from A to B, from B to C and from C to A, *how long is AC, supposing that  $AB = 5m$ ,  $CB = 6m$  and that the angle CAB is twice the angle ABC?* **(A44 p.167)**



◇ *An old paradox*

Two runners (Rinaldo and a snail) start a race. Rinaldo runs at 11 km/h, 1,500 times faster than the snail, so the latter is given an advantage of 22 km on a track of 50 km. *When will Rinaldo reach the snail?* **(A45 p.155)**

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◇ An exhausted trekker in the outback drags himself to Uluru at 2 km/h for the first third of his expedition. Then he finds some water, and after recovering his strength, he finishes his excursion at 4.5 km/h. *What is his average speed?* **(A46 p.128)**

◇ If you take a number, add it to the number immediately following it, multiply the result by the number immediately following the number immediately following it, and divide the result by the last but one number preceding it, and the final result is twice the initial number + 13, *what was the initial number?* **(A47 p.113)**

◇ Astute, Bright and Clever, three members of Ludomind, have undergone an IQ test. Bright's score was 20 points higher than Clever's, but 12 points lower than Astute's. If the sum of Astute's and Clever's IQs divided by Bright's IQ is 1.95, *what are their respective IQs?*

**(A48 p.144)**

◇ Priscilla's auntie has bought a white cat for her niece's birthday, but her sister (Priscilla's mother) says her daughter cannot keep the cat because she is allergic. So the auntie, who had

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originally bought the cat for \$75, sells it for \$90. Then she remembers that she has another niece and buys it back for \$80. Unfortunately, this niece is allergic too (it must run in the family...), so she has to sell it again for \$70.

*Did she make a profit or a loss with these transactions?* **(A49 p.124)**

◇ Two rattlesnakes approach each other from opposite directions at a speed of 0.5 and 0.58 km/h. When they meet, *how long does it take from the moment when their heads meet to the moment when their rattles meet*, knowing that the first snake is 1.4 m long and the second 1.6? **(A50 p.117)**

◇ 250 ants have food supplies for 4 months. They are joined by 150 ants whose anthill has been destroyed by a reckless jogger. *How long will the overall food supplies last the 400 ants?* **(A51 p.151)**

◇ David's goal is to run at an average speed of 8 km/h. He starts a race along a path in Centennial Park rather slowly (4.5 km/h), as he is out of practice. He runs until the end of the path at this speed, then takes a break and recovers his strength. *At what speed must he*

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*run back along the same path if he wants to keep up to his goal of 8 km/h?*

**(A52 p.170)**

◇ Geniuses have to work for a living too, although they obviously don't choose normal occupations. Exuberant, Frantic and Gusty, three members of the ISPE (*International Society for Philosophical Enquiry*), are no exception. They make their living as poet, painter and nuclear physicist, though not necessarily in this order.

Some time ago, the painter, who had read an article about the poet, wanted to meet him, but was told he had gone on holiday with the nuclear physicist.

Frantic earns more than Exuberant.

The nuclear physicist earns more than the painter.

Gusty has never heard of Frantic.

*Can you deduce the respective occupations of the three geniuses from these statements?*

**(A53 p.124)**

◇ Four little insane geniuses (Moody, Nostalgic, Oversensitive and Petulant) have blasted the



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school's lab. Questioned by the headmaster, they make the following statements:

*Moody*: Nostalgic did it.

*Nostalgic*: Moody is lying when he says I did it.

*Oversensitive*: I didn't do it.

*Petulant*: Moody did it.

*Supposing only one of the statements is true, who is the culprit? (A54 p.172)*

*Suppose now that only one of the statements is false and that there is only one culprit, who is it? (A55 p.136)*

◇ Three little insane geniuses (Strange, Tantalizing and Unique) and a little sane genius (Ludwig) are playing on the beach. It's a wonderful day and they build sand castles. Ludwig's castle is higher than Tantalizing's, but lower than Unique's, whose castle is higher than Strange's, whose castle is higher than Tantalizing's, but lower than Ludwig's. *Can you determine the relative height of the castles to one another? (A56 p.111)*

◇ Twelve members of PGS (*Poetic Genius Society*) have gone to an annual meeting in Sydney. *In how many ways can they be seated at a round table? (A57 p.126)*

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◇ Ann decided to tidy up her kitchen, which is really a mess, particularly the cupboard, where she has jars of different colours and lids of the same colours as the jars, all mixed up. If for any jar there are as many lids as other jars, but for any lid only half as many lids as jars, *how many jars and how many lids are in the cupboard?* **(A58 p.163)**

◇ *Which letters complete the squares?*

**(A59 p.169)**

A	N	O	D
L	G	?	I
H	K	J	I
M	B	C	P

D	I	B
C	E	?
H	A	F

◇ Fifteen geniuses members of Platinum undergo an IQ test. *In how many ways can the first four places be formed?* **(A60 p.134)**

*More puzzles*

◇ Connie's mother has baked cookies: 15 chocolate cookies, 12 vanilla cookies and 20 oats cookies. She puts them in a jar and goes into another room. Connie sneaks into the kitchen to steal a cookie from the jar. *What is the probability that she takes out a chocolate cookie?* **(A61 p.146)**

*How many cookies must she take out of the jar to be sure to pick a chocolate one?* **(A62 p.109)**

◇ Norman's friends are very smart. All of them but three study chemistry, all of them but three nuclear physics, all of them but three mathematics and all of them but three astronomy.

*How many friends has Norman and what do they study, assuming they only study one discipline each?* **(A63 p.118)**

◇ Alan, Brandon, Craig, David and Edward, five sane geniuses, have their birthdays on consecutive days, but not necessarily in that order.

1. Alan's birthday is as many days before Craig's as Brandon's is after Edward's.
2. David is two days older than Edward.
3. Craig's birthday is on Saturday.

*More puzzles*

*Can you determine the geniuses' birthdays?*  
**(A64 p.150)**

◇ Albert is a proud genius and a proud grandfather aged between 60 and 80. Each of his sons has as many sons as brothers. *Can you tell how old Albert is*, knowing that the combined number of Albert's sons and grandsons equals his age? **(A65 p.128)**

◇ A couple of geniuses, Claudia and David, are preparing to go to an ISI-S meeting in Geneva, but their watches don't show the same time (they bought them on holiday, not in Switzerland).

Claudia's watch is eight minutes slow, but she thinks it's two minutes fast.

David's watch is three minutes fast, but he thinks it's four minutes slow.

The ISI-S meeting is at 11am, but members are supposed to arrive 15 minutes earlier. Supposing Claudia and David live 15 minutes from the meeting place, *will they arrive in time? When will they arrive?* (By the way, they don't leave together because they both trust their own watch.) **(A66 p.165)**

*More puzzles*

◇ Geniuses love books and just cannot get rid of them, not even when they are very old and have become illegible. For this reason, a group of geniuses have invented a device for recycling books. This device makes one new book out of seven old ones. *How many books can they obtain if they recycle the 628 books of their old library?* **(A67 p.172)**

◇ A bookworm has recycled an unknown number of books. After he has made new ones from them and recycled them again when they are old until he cannot produce any more, he has finished producing 135 new books. If he could produce 1 new book for every 7 old books, *what was the minimum number of books that he could have started with?* **(A68 p.123)**

◇ The CIVIQ High-IQ Society has different interest groups. One day, a genius belonging to group A decided to change to group B, after which the members of group A equalled the members of group B. But just a few days later, this genius decided to go back to group A, so everything seemed to be back to normal, until a few days later a member of group B decided to change to group A, and at this point there were

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twice as many members of group A as of group B. *How many members did the two groups originally contain?* **(A69 p.139)**

◇ Two members of Sigma want to catch the 6pm train to go to a dinner in Melbourne. They live 35 km from the train station, so they think that if they leave at 5:20 pm they will be at the railway station at 5:50 pm if they drive at a speed of 70 km/hour. Unfortunately, at 5:20 pm they notice that their car won't work properly, as it only reaches a maximum speed of 40 km/hour. So they think to make use of two old inventions of theirs, one that increases the car's speed by 25%, and another that increases it by 15%. In the meantime, however, it is already 5:30pm. *Will they arrive in time at the railway station or should they give up the dinner in Melbourne?* **(A70 p.102)**

◇ Bookworm, a sane genius, is transported to a magic land by a fairy. It is a wonderful land, full of colours, songs and peace, but what really fascinates Bookworm are the three doors of the local library (actually not the doors, but what is behind them, of course). Unfortunately, the signs on them are incorrect. The first (A) reads

*More puzzles*

“Philosophy”, the second (B) “Poetry” and the third (C) “Astronomy or Philosophy”. *How many doors must Bookworm open to determine what is behind each door and bury himself under a pile of books?* **(A71 p.118)**

◇ A bug on a globe crawls 7 cm southwards, 7 cm eastwards and 7 cm northwards, after which he finds himself at the same point from which it departed. *From where did it depart?* **(A72 p.153)**

◇ A little genius likes to study with cassettes and Walkman. He has three cassettes: the first has mathematics on both sides, the second mathematics on one side and poetry on the other, and the third poetry on both sides. He goes out and puts a cassette in his Walkman. It has mathematics on it. *What is the probability that the other side of the cassette also has mathematics?* **(A73 p.160)**

◇ A genius (it is not clear from the records if sane or insane) has invented a potion to increase his IQ. As he put very rare ingredients in this potion, he doesn't want to run out of it too soon. He has 5 litres. On the first day, right after breakfast, he drinks one litre of the potion

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and then refills the bottle with water. On the second day, he drinks two litres and then refills the bottle with water, and so on for succeeding days until the bottle is empty. *How many litres of water does he drink?* **(A74 p.160)**

◇ Two geniuses and a normal are on holiday and decide to go to Hawaii together. The weather is beautiful, everything seems to be perfect, and they lease a boat for two hours for 30 dollars. After they leave, the owner first realizes from his records that they have rented it for only two hours. He had charged them with 30 dollars because he had understood three hours, but the price for two hours is actually only 25 dollars. So he gives one of his employees 5 dollars, telling him to return the money to them when they come back. Then he goes home. The two geniuses and the normal come back, and the boy gives them one dollar each, apologizing for his owner. He keeps two dollars for himself, taking advantage of the fact that he cannot divide five dollars by three anyway. Then the geniuses and the normal go back to their hotel, where they meet other tourists who have already been in Hawaii for a while, and who tell them that the price for two



*More puzzles*

hours is 25 dollars. So they realize that the boy cheated and that the owner must have given him 5 dollars to return to them. At this point the normal intervenes, all confused and stuttering: "How is this possible? If the owner gave him 5 dollars, he must have kept 2 for himself, as he gave each of us 1 dollar. But we had already paid 10 dollars each, so minus the dollar we got back, we paid 9 dollars each, which multiplied by 3 makes 27. So 3, and not 2 dollars are missing, as  $30 - 27 = 3$ ! What happened to the other dollar?" "Calm down, my friend", reassures him one of the geniuses. "He only stole 2 dollars from us. No further dollar is missing. I can prove it." *What does the genius explain to the excited normal?* **(A75 p.124)**

◇ *In how many ways can a High Potentials Society committee consisting of 5 men and 7 women be chosen from 10 men and 10 women?* **(A76 p.146)**

◇ If Priscilla's daughter is my daughter's mother, *how am I related to Priscilla?*

**(A77 p.136)**

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◇ Lee promised to make muffins for her mother, who owns a bakery. She boasts she can make an average of 50 muffins / hour. She makes only 35 in the first hour, 45 in the second hour, 50 in the third hour and a record of 70 in the fourth hour. *Did she keep her promise?*

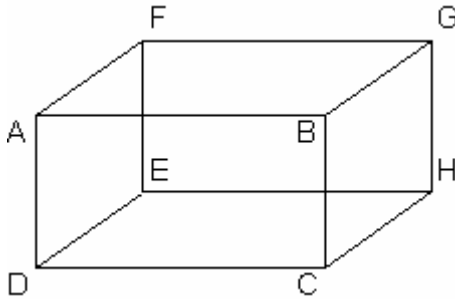
**(A78 p.116)**

◇ At a Mysterium meeting in Vienna, the President (Austrian) and the Vice-president (Australian) sit directly across from each other at a round table, while between them (on both sides) sit six members from Austria and Australia. In how many ways can the twelve members sit if no Austrian is to sit next to another Austrian or to the President?

**(A79 p.140)**

◇ A plump cockroach in an empty cupboard is taking a nip at D, when he suddenly notices a crumb at G. *Which path must he take if he wants to take the shortest route to the crumb* (he is really hungry)? **(A80 p.123)**

*More puzzles*



◇ A genius is watching a documentary film on supernovas, when the TV breaks down, only  $\frac{1}{3}$  (30 minutes) after the start. So he quickly invents a device to repair the TV, and can finish watching the documentary film. But unfortunately, after applying the device, the film has  $\frac{1}{2}$  as far to go until the end, as the time he needed to apply the device. *How long did he need to apply the device?* **(A81 p.137)**

◇ Two kangaroos in love start hopping towards each other from opposite ends (A and B) of an outback track. They both hop at a constant speed and meet for the first time 800m away from B. After flirting for about 10 minutes, they start hopping again, reach the other end of the track, then hop back and meet again at 400m from A. *How long is the outback track?*

**(A82 p.149)**

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◇ It takes Ben 50 minutes to cycle to the Uni and go back to his small studio apartment after his classes. One day, after leaving the University building, he looks in vain for his bike. It has been stolen! So he has to go back on foot, and it takes him 1 hour and 45 minutes. Knowing that on average he walks 14 km/h slower than he bikes, *how fast does he walk (on average)?* **(A83 p.163)**

◇ After discovering his wife has an affair, Brandon packs his things and leaves her. He walks 1 km to the railway station and is about to buy a ticket to Alice Springs, when he notices that he has forgotten something very important. So he leaves his baggage at the railway station and walks half the way back to his house, but then he decides not to go on because he doesn't want to see his wife ever again, and he walks back to the railway station. After a muffin and a cappuccino, he recovers his strength and self-confidence, and sets off again towards his house. He goes half the way he has just gone, then again the mere thought of his wife and her lover disgusts him so much that he walks back to the railway station. He goes on like that (walking towards his house for half the way he

*More puzzles*

has just gone, then back to the railway station) until he has to stay at the railway station (he has missed his train in the meantime, by the way). *How many kilometres does the desperate husband walk back and forth?* **(A84 p.168)**

◇ An insane genius has invented a watch that no one but he can read. The hour hand completes a circle in 10 hours, the minute hand in 90 minutes. If this watch shows the correct time now at 1:30 pm, *what time will it approximately show at midnight?* **(A85 p.131)**

◇ It was a clear summer night with a light breeze, and Stargazer was sitting on the verandah counting the stars. “Please, come in! It’s 2am!”, shouted his wife from the bedroom. Stargazer could observe different types of stars, bright, bizarre stars, with his telescope, and was so delighted that he didn’t even hear her. So she went out to fetch him. “I’ll come in if you can answer this question, Sweetheart”, announced Stargazer. “Can you see how many stars there are this night? There are more than one group, darling, and each group contains the same number of stars. There are between 200 and 300 stars. I cannot tell you how many stars

*More puzzles*

there are altogether, or you would know how many groups there are. If you can tell me how many stars and how many groups there are, I'll come inside." His wife couldn't answer, and he stayed on the verandah all night. *Can you?*  
**(A86 p.145)**

◇ A young man wants to get rid of the weeds in his backyard. So he buys three rabbits, which eat up the weeds in three days, all eating at the same speed. Then, unfortunately, a fox kills one of the rabbits. Fearing the fox, the man keeps the rabbits off the backyard for a while. In the meantime, the weeds grow again. So the man has no choice but to employ the remaining two rabbits, which eat up the weeds in six days. Unfortunately, after six days, the fox kills another rabbit. The man keeps the only rabbit left as a pet for a while, but when his yard is invaded by weeds again, he decides to employ his pet to get rid of them. *How long will his pet need to eat up the weeds?* **(A87 p.138)**

◇ On Christmas Day, Dale said to his brother: "This is my Christmas present for you. Can you see this 7x7 square chessboard? I'll give you 1 dollar for every square you can spot." *What is*

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*the maximum number of dollars his little brother can get? (A88 p.121)*

◇ In order to learn some mathematical formulas by heart, a little genius has carved them on the faces of an 8-faced die. *How many throws are required on average before each of the eight formulas has landed face upwards?*

**(A89 p.110)**

◇ Two geniuses (Bright and Smart) are the lucky owners of a very rare series of wines. Bright owns 6 litres, Smart 9. When two new members join their High-IQ Society, they decide to share their rare wines with them in order to make them feel welcome. The two new members (Brilliant and Sensational) reveal that they also own a series of rare wines they would like to share with Bright and Smart. If Brilliant has 7 litres and Sensational 8, *how many litres will Bright receive from Brilliant and Sensational?*

**(A90 p.118)**

◇ A group of little geniuses is working on a school project. The schoolmaster has put a lab at their disposal to give them the opportunity to work as efficiently as possible. The little

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geniuses have calculated that they can finish their project in four days by using twelve computers of type A and seven computers of type B, or in five days by using ten computers of both types. *Which computer - type A or type B - is more efficient, and by how much?*

**(A91 p.137)**

◇ If a genius can solve a problem in 10 minutes and another genius in 7, *how long will it take them to solve it together?* **(A92 p.151)**

◇ The sum of Anne's and Ben's ages equals the square of seven subtracted by the square of two. Anne is three times as old as Ben was when she was as old as he is now. *How old are Anne and Ben?* **(A93 p.144)**

◇ At a Vinci meeting in Sydney, in which 200 members participated, it turns out that 71% of the participants have a Master's degree and 52% a Doctorate. The others have only a Bachelor's degree. *How many?* **(A94 p.164)**

◇ A caring mother has baked cookies for her two children. Obviously, as they are home-made, they are irregular and not all the same weight. As the children start to fight for the cookies,

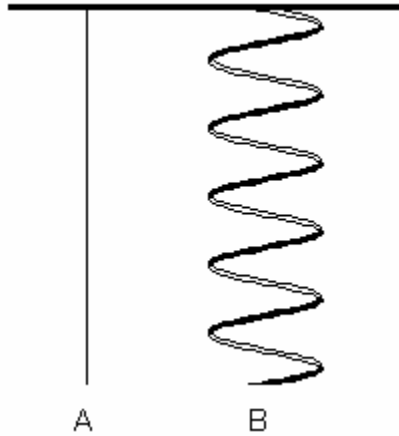


*More puzzles*

Mum weighs them, and they turn out to be 10, 20, 15, 35, 25 and 30 g. Sarah, who has been admitted to Mensa as a “gifted child”, makes the following suggestion: “We should divide the cookies in such a way that the average weight of yours is the same as the average weight of mine”. “OK”, answers little Craig. Yet, after sharing the cookies according to Sarah’s suggestion, he is not so happy any more. *Why?*  
**(A95 p.158)**

◇ Two insomniac bugs decide to creep into a cupboard for a midnight snack. The first bug, Slimmy, crawls along A directly to the cupboard. The second bug, Fatty, crawls along B, a helix with a constant angle of  $60^\circ$  with the vertical, as he has to lose some weight and wants to do some exercise. If Slimmy, being fitter, is twice as fast as Fatty, *how much longer will it take Fatty to reach the cupboard, supposing they leave the floor at exactly the same time and Slimmy promises not to eat up Fatty’s share when he reaches the cupboard?*  
**(A96 p.111)**

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◇ If it takes a cyclist twice as long to pass a jogger in Central Park after he first overtakes him as it takes both of them to pass each other when going in opposite directions, *how many times faster than the jogger is the cyclist?*

**(A97 p.119)**

◇ A person steps into an elevator. You don't know if it is a man or a woman. A second person (a man) follows the first person. The first person who steps out of the elevator is a man. *What are the chances that the person who is still in the elevator is also a man?* **(A98 p.130)**

◇ Sarah's mother drives her own child to school every morning. Halfway, she picks up Sarah's little friend Matthew, as they attend the same

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school. At 12 o'clock, she waits for the two children in front of the school building with her doggie and drives them home.

If she spends \$36 a month on petrol (she doesn't use her car for any other purpose except in summer, when she goes on holiday), *how much should Matthew's mother give her every month*, if they share the costs?

**(A99 p.140)**

◇ At Halloween, three boys, Jack, Jim and Jean, decide to go for a round, frightening people with balloons full of water. But not all of them have the same number of balloons at home, so they decide to share them as follows, helped by the ghosts.

Jack leans Jim and Jean as many balloons as they each already have. Then Jim leans Jack and Jean as many as they each have. Finally, Jean leans Jack and Jim as many as they each have. Now each boy has 24 balloons. *How many balloons did the boys originally have?*

**(A100 p.124)**

◇ Five single grannies have a passion for pets. They all keep at least one. Together, their pets

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have ten heads and thirty legs. Angela keeps a budgie, but no cats or dogs. Beatrice has six legs (including her own two) and a pair of whiskers. Connie and Deborah keep the same number of pets, who all together have the same number of legs, although Connie prefers cats to dogs, and Deborah dogs to cats. Eleanor trained her pets to respect and love Angela's budgie, and sometimes they even play together.

*Who keeps what? (A101 p.136)*

◇ If you add 133 to the numerator and the denominator of  $1/133$ , *by how many times does the fraction itself increase its value?*

**(A102 p.110)**

◇ Mr. And Mrs. Bright and their two children are a family of geniuses. According to one of their friends,

1. Greg and Doris are blood relatives;
2. Herbert is older than Greg.
3. Vanessa is younger than Herbert;
4. Vanessa is older than Doris.

Unfortunately, their friend is not very well informed, as only two of the above statements are true.

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*What is the first name of each member of the family? (A103 p.146)*

◇ Christmas time: three friends, Alice, Beatrice and Claudia, whose surnames are Howard, Clark and Beazley, though not necessarily in this order, go shopping together in the City. Mrs. Beazley spends twice as much as Mrs. Clark, and Mrs. Clark spends three times as much as Mrs. Howard. If Alice spends \$27.25 more than Claudia, what is each lady's full name? **(A104 p.164)**

## Brain-Teasers

(just a little bit more challenging)<sup>5</sup>

- *The Ultimate Beauty Contest*

In just two days a beauty contest for dogs will be held at the local community centre. Five insane geniuses (Absent-Minded, Bizarre, Crazy, Distracted and Extravagant) have decided to create five dogs of five different colours (pink, pea-green, ultramarine, violet and yellow), but they cannot agree on who is going to create what. After much weeping and gnashing of teeth, they finally decide as follows:

1. If Extravagant doesn't create the pea-green dog, Crazy creates the ultramarine or the yellow dog.

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<sup>5</sup> In order to solve these puzzles, it is advisable to set up charts, in particular truth logic charts and deductive logic charts. In truth logic charts, you have to assign T's and F's to each set of statements according to the conditions exposed in the puzzle. Then you basically have to proceed by trial and error, assuming that a statement is true or false, and following your assumption through to its logical consequences. Use a cross to eliminate a connection, use an O to establish one (of course you can also use other symbols, for instance a  $\surd$ ). In deductive logic charts, you have to repeat additional sets to the right and under a set or sets, if the sets of facts are more than two. A trial-and-error reasoning in deductive logic is just as important as in truth logic. In deductive logic, it is also usual and helpful to prove X by assuming not-X, and then deduce X from it. Equally, in order to prove not-X, you have to assume X and then deduce not-X. This is particularly useful for "if-then" statements.

## *Brain-Teasers*

2. If neither Absent-Minded nor Bizarre create the violet dog, Distracted creates the pea-green dog.

3. If Absent-Minded doesn't create the ultramarine dog, either Crazy or Distracted create the pea-green dog.

4. If Bizarre doesn't create the yellow dog, then, if Absent-Minded doesn't create the pea-green dog, Crazy creates the violet dog.

5. If Absent-Minded doesn't create the pink dog, then, if Bizarre doesn't create the violet dog, Distracted creates the ultramarine dog.

*Who creates what? (A105 p.158)*

- Six insane geniuses (Anomalous, Bewildered, Confused, Deranged, Erratic and Fanciful) work as spies for a planet of the Andromeda Galaxy. They were supposed to send a coded message to this planet, but it didn't arrive, and it is not clear who is the last one to have seen it, that is to say, who is responsible for the loss (intergalactic mail is 100% reliable, so the responsible must be one of the geniuses).

Fanciful says he has sent it to Anomalous and Confused, and received it from Bewildered and Erratic.

## Brain-Teasers

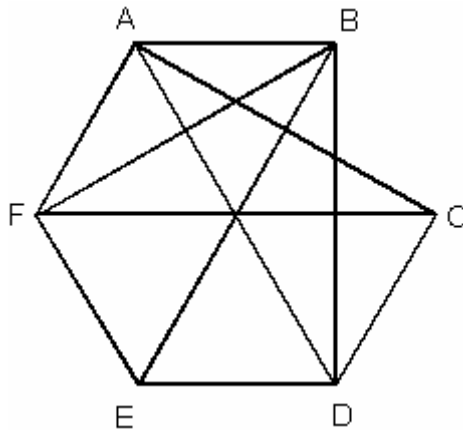
Deranged affirms that he has sent it to Confused and Erratic, and received it from Anomalous and Bewildered.

Anomalous asserts to have sent it to Bewildered and to have received it from Confused.

Bewildered declares that he received it from Erratic.

*Who is responsible for the loss of the coded message, that is to say, who is the last one to have seen it? Can you recognize the problem from the graphic representation (the letters correspond to the names of the geniuses)?*

**(A106 p.123)**



- Four geniuses members of TNS (*Triple Nine Society*), Acute, Brilliant, Considerate and Discerning, decide to undergo an IQ test, and -



## Brain-Teasers

smart as they are - they even claim to know in advance how they will rank.

*Discerning*: If I am first, then Acute will be third.

*Brilliant*: If Acute is third, Discerning will be last. Discerning will score better than Considerate.

*Acute*: If Brilliant is not first, then Discerning will be third. If I am second, then Considerate won't be last.

*Considerate*: If Acute is first, then I'll be second. If Brilliant is not second, I won't either.

Would you believe it? Their previsions were right!

*Can you determine their scores? (A107 p.102)*

- Lunatic, Madcap, Neophyte, Orthodox and Perfectionist are five insane geniuses, each of which speaks two of five languages (Ladin, Macedonian, Norwegian, Occitanian and Portuguese). Each language is thus spoken twice.

Orthodox has a language in common with Neophyte, but no language in common with Madcap. He doesn't speak Ladin.

Neophyte doesn't have any language in common with Lunatic.

Madcap speaks Macedonian.

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Lunatic speaks Occitanian, but not Ladin or Portuguese.

Only two speak two alphabetically consecutive languages, Lunatic and Perfectionist.

*Who speaks what? (A108 p.120)*

- Eerie, an insane genius in his thirties, has a young brother. Eerie says he is three times as old as his brother was when he was twice as old as at the time when he was by his mother's side when she gave birth to his brother.

*How old are they? (A109 p.167)*

- Sometimes (although not so often) geniuses fall in love and marry (for unknown, irrational reasons beyond their control). Clairvoyante, Perspicace and Sagace met their wives (Belle, Charmante and Jolie, though not necessarily in this order) at a Prometheus meeting in Paris and fell in love with them at first sight. Now each couple has a daughter named IQ1, IQ2 and IQ3 (in honour of their parents' IQ). We know the following facts:

1. Sagace is neither Jolie's husband nor IQ2's father.
2. Belle is neither Perspicace's wife nor IQ1's mother.

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3. If IQ1's father is either Perspicace or Sagace, then Jolie is IQ3's mother.

4. If Perspicace is Jolie's husband, then Charmante is not IQ1's mother.

*What are the names of each genius's respective wife and daughter? (A110 p.142)*

• Thirty-seven members of Ultramet take part in a series of IQ tests in a contest called "Dare to be smart". In the first round and in any later round with an odd number of players, a member is eliminated. *How many rounds must the participants go through before there is a winner? What is the minimum number of byes? (A111 p.126)*

• Four members of Glia (Ingenious, Judicious, Keen-Witted and Laborious) decide to celebrate the anniversary of the foundation of their High-IQ Society at a local restaurant. Each of them wears a jacket of the same colour as his hat (black, blue, grey and white). We know the following facts:

1. Ingenious arrives just before the member who wears the blue hat, who isn't Judicious.
2. Keen-Witted doesn't wear a grey hat.
3. Laborious doesn't wear a white hat.

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4. The four members are Judicious, the member who arrives second at the restaurant, the member who wears a white hat, and Keen-Witted.

5. Judicious doesn't arrive first, and Laborious is not the member who arrives just before him.

*Can you deduce the order of arrival of the members at the restaurant as well as the colours of their hats? (A112 p.113)*

• Five little geniuses (Enlightened, Erudite, Grave, Literate and Sage) use to bike at dawn to stimulate their grey matter. Each of them owns his own bicycle (aquamarine, emerald, malachite, olive-green and verdigris), but one morning it was so dark that the first of them to awake took the wrong bicycle for his usual ride, so when the second awoke and found his bike gone, he also had to take another one, and so on. The final result was that they all took a wrong bicycle. We know the following facts:

1. The aquamarine bike was used by the little genius who owns the olive-green bike.
2. Sage either owned or used the malachite bike.
3. The owner-user pair for any one bike was in no case the user-owner pair for another bike.

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4. The bike used by Literate belongs to the little genius who used the emerald bike.
5. Erudite used the verdigris bike, which doesn't belong to Enlightened.
6. Grave's bike was used by Enlightened.
7. Either Sage borrowed Literate's bike, or Literate borrowed Sage's.

*Can you determine which little genius owns which bike and which one he used on the day of the mix-up? (A113 p.104)*

- Alexandra, Bertha, Clara and Dorothy, two sane and two insane geniuses, work for the same High-IQ-Society, the Cerebrals, but not at the same rhythm. Alexandra can do a job in 7 hours, Bertha can do the same job in 5, Clara in 3 and Dorothy in only 1 (because of her progressive insanity, which makes her hyperactive). Last week, Alexandra started a project alone. After an hour, she was joined by Bertha. Clara arrived an hour after Bertha with some important papers. Dorothy arrived an hour after Clara, all red and extremely excited. So they completed the project together. *How many hours did it take them to complete the project, from the time Alexandra started to work on it? (A114 p.164)*

## Brain-Teasers

• Five little geniuses, aged 4, 5, 6, 7 and 8, go to the same mathematics class every Thursday afternoon. We know the following facts:

1. Every Thursday Mrs. White goes to her mother and leaves her children with Mrs. Cole to take to the class with her children. Mrs. Cole's daughter is younger than Mrs. White's children.

2. Tania is older than Larry, but younger than the Gates child.

3. The Brown girl is two years older than Louise.

4. Rita's mother is sometimes home on Thursdays and occasionally takes Sebastian to the class, while his mother is at work. However, she never takes either White child.

*Can you determine the full names and ages of the little geniuses? (A115 p.156)*

• Sarah's classes end at noon. At that very moment, her doggie starts running towards the school building. He runs three times as fast as Sarah walks home. They usually meet at 12:18 and go home together for the remaining  $\frac{3}{4}$  of the path.

## *Brain-Teasers*

One day, Sarah leaves the school building five minutes later, as she has to speak to her teacher. On that very day, her doggie has been assaulted by a ferocious wild cat and has been badly wounded. Yet his love to Sarah lets him forget his wounds, and at noon he leaves home as usual, although he cannot run, but only limp half as fast as Sarah walks (at her usual speed).

*At what time do they meet? (A116 p.148)*

- Five geniuses give each other books for Christmas. Each gives four books, and also receives four, but no two geniuses distribute their books in the same way (only one for instance gives three books to a genius and one to another).

We know that Bright gives all his books to Ambitious and that Competent gives three to Eloquent.

*Who are the donors of the four books received by Didactic? (A117 p.133)*

**Odd one out** <sup>6</sup>

Which of the following words, diagrams or numbers is the odd one out?

☞ bus - car - cart - plane **(A118 p.103)**

☞ alga - geld - pram - lagan **(A119 p.111)**

☞ dog - cat - bear - swan **(A120 p.141)**

☞ carrot - spinach - nettle - cabbage  
**(A121 p.172)**

☞ Italy - Spain - Denmark - England  
**(A122 p.121)**

☞ vulture - lug - strut - dump **(A123 p.132)**

☞ pig - wig - wag - meg **(A124 p.117)**

☞ fear - awe - ingratitude - hatred  
**(A125 p.138)**

☞ TV - Internet - newspaper - radio  
**(A126 p.125)**

☞ ant - lion - zebra - leopard **(A127 p.116)**

☞ blink - block - bloom - blood **(A128 p.132)**

☞ anagram - antigram - limerick - palindrome  
**(A129 p.170)**

☞ mug - bag - age - gem **(A130 p.159)**

☞ moon - rock - spacewalk - voodoo

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<sup>6</sup> In the graphical puzzles, circles are considered as consisting of one side, according to a widespread convention in puzzles.



*Odd one out*

**(A131 p.116)**

☞ head - tall - heal - teal **(A132 p.110)**

☞ prunella - damask - lattice - gingham

**(A133 p.164)**

☞ fly - lathe - drill - wheel **(A134 p.135)**

☞ four - fowl - low - Wolfe **(A135 p.104)**

☞ senryu - tanka - tanker - clerihew

**(A136 p.111)**

☞ totara - nipa - talipot - sago **(A137 p.132)**

☞ bladderwrack - carrageen - amanita -  
nullipore **(A138 p.103)**

☞ remora - bluecap - mado - tarpot

**(A139 p.121)**

☞ sphairee - haiku - shuttlecock - gridiron

**(A140 p.136)**

☞ kat - gomuti - strophantus - simarouba

**(A141 p.168)**

☞ G - em - inn - whirl - innuendo - statistician

**(A142 p.156)**

☞ iron - door - jacket - organ - bath

**(A143 p.123)**

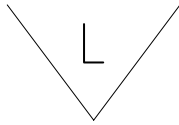
☞ table - bed - chandelier - chair **(A144 p.107)**

Odd one out

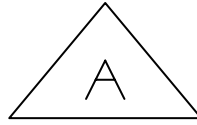
☞ (A145 p.154)



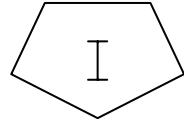
**A**



**B**



**C**

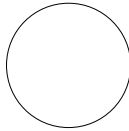


**D**

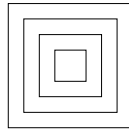
☞ (A146 p.128)



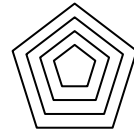
**A**



**B**

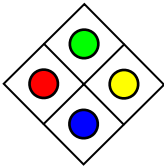


**C**

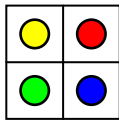


**D**

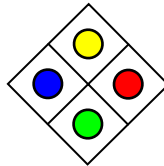
☞ (A147 p.134)



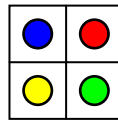
**A**



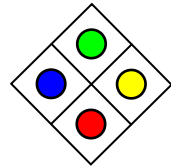
**B**



**C**



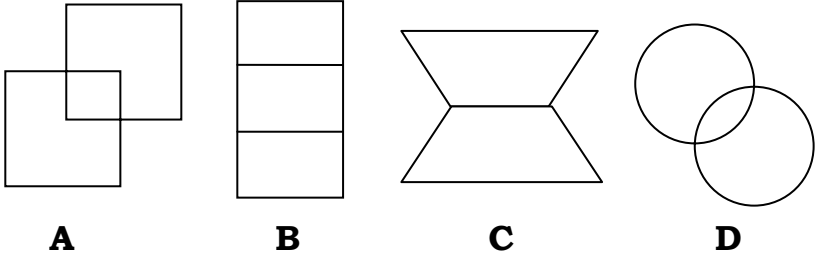
**D**



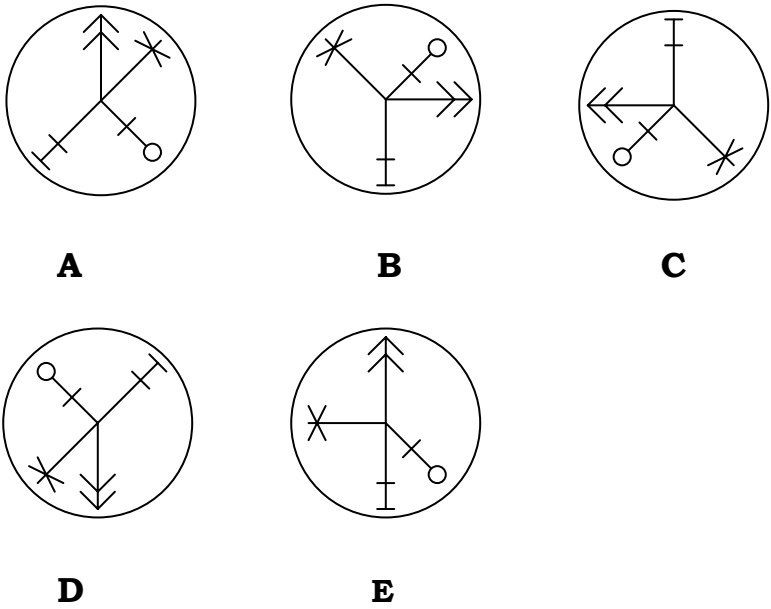
**E**

Odd one out

☞ (A148 p.172)

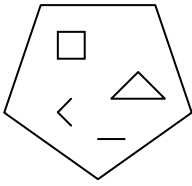


☞ (A149 p.158)

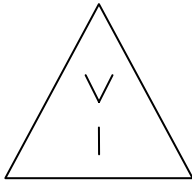


Odd one out

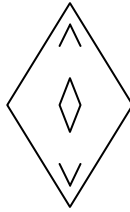
☞ (A150 p.167)



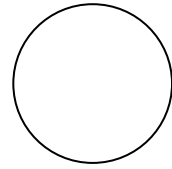
**A**



**B**

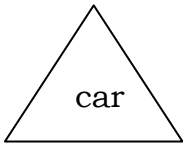


**C**

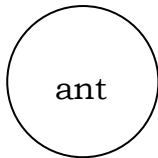


**D**

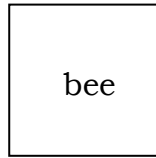
☞ (A151 p.124)



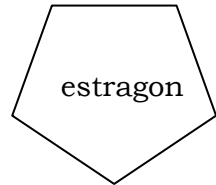
**A**



**B**

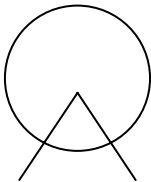


**C**

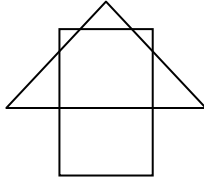


**D**

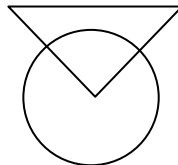
☞ (A152 p.108)



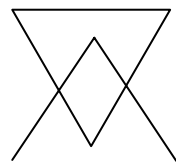
**A**



**B**



**C**



**D**

*Odd one out*

- ☞ 1 - 3 - 6 - 7 - 10 - 15 **(A153 p.119)**
- ☞ 6 - 1 - 20 - 8 - 12 - 5 - 18 **(A154 p.137)**
- ☞ 91 - 39 - 143 - 131 **(A155 p.138)**
- ☞ 31 - 71 - 32 - 28 - 34 **(A156 p.162)**
- ☞ 4 - 6 - 10 - 14 - 15 - 22 **(A157 p.168)**
- ☞ 343 - 729 - 9 - 715 - 7 **(A158 p.111)**
- ☞ 2,197 - 78,125 - 343 - 161,051 - 2,401  
**(A159 p.115)**
- ☞ 136 - 187 - 157 - 255 - 51 **(A160 p.158)**
- ☞ 576 - 13,824 - 28,726 - 331,776  
**(A161 p.150)**
- ☞ 251 - 387 - 787 - 887 - 907 **(A162 p.126)**
- ☞ 39 - 65 - 91 - 117 - 143 **(A163 p.108)**
- ☞ 216 - 512 - 1,728 - 2,415 **(A164 p.119)**
- ☞ 14,641 - 38,416 - 50,625 - 62,314  
**(A165 p.166)**
- ☞ 934 - 337 - 107 - 91 - 78 **(A166 p.133)**
- ☞ 169 - 225 - 289 - 361 - 529 **(A167 p.139)**
- ☞ 2.645 - 4.358 - 5.567 - 7.291 **(A168 p.151)**
- ☞ 4 - 10 - 25 - 62 **(A169 p.135)**
- ☞ 5 - 10 - 18 - 28 - 41 **(A170 p.129)**
- ☞ 5 - 11 - 20 - 29 - 41 **(A171 p.119)**

## **Numbers, numbers, numbers**

Which numbers come next in the following sequences?

🕒 64,364 - 4,254 - 223 - 31 - 12 - 11

**(A172 p.103)**

🕒 2 - 8 - 18 - 32 **(A173 p.161)**

🕒 4 - 9 - 25 - 49 **(A174 p.121)**

🕒 2 - 7 - 17 - 29 **(A175 p.140)**

🕒 3 - 6 - 3 - 1 **(A176 p.146)**

🕒 6 - 19 - 41 - 71 **(A177 p.137)**

🕒 11 - 12 - 32 - 43 **(A178 p.107)**

🕒 7 - 12 - 28 - 52 **(A179 p.120)**

🕒 2 - 5 - 11 - 17 **(A180 p.164)**

🕒 6 - 18 - 38 **(A181 p.160)**

🕒 -2 - 5 - 24 **(A182 p.123)**

🕒 7 - 23 - 55 - 109 **(A183 p.147)**

🕒 6 - 18 - 40 - 75 **(A184 p.132)**

🕒 6 - 22 - 14 - 18 - 16 **(A185 p.135)**

🕒 16 - 61 - 66 - 69 (Choose from 81, 86, 89 and 91) **(A186 p.108)**

🕒 1 - 1.33 - 1.58 - 1.78 **(A187 p.118)**

🕒 3 - 2 - 6 - 5 - 11 - 15 - 18 - 12 - 29 - 4 - 42 - 7 **(A188 p.166)**

🕒 973 - 19 - 10 **(A189 p.161)**

🕒 90 - 61 - 52 - 63 **(A190 p.127)**

🕒 176 - 88 - 29.33 - 7.33 **(A191 p.143)**

*Numbers, numbers, numbers*

- ‡ 378 - 21 - 7 **(A192 p.151)**
- ‡ 1,042 - 343 - 94 **(A193 p.113)**
- ‡ 13 - 14 - 28 - 25 - 6.25 - 7.25 - 14.5  
**(A194 p.137)**
- ‡ 5 - 7 - 9.8 - 13.72 **(A195 p.153)**
- ‡ 394 - 378 - 360 - 351 - 342 **(A196 p.170)**
- ‡ 98 - 117 - 136 - 155 **(A197 p.159)**
- ‡ 453 - 393 - 312 - 306 **(A198 p.124)**
- ‡ 395 - 412 - 405 - 414 **(A199 p.138)**
- ‡ 1 - 8 - 81 **(A200 p.151)**
- ‡ 2 - 2 - 16 - 432 **(A201 p.135)**
- ‡ 1.75 - 1.39 - 1.26 - 1.2 **(A202 p.110)**
- ‡ 11 - 132 - 453 - 974 **(A203 p.120)**
- ‡ 6 - 15 - 35 - 77 - 143 **(A204 p.119)**
- ‡ 8,271 - 7,912 - 4,472 **(A205 p.164)**
- ‡ 1 - 2 - 12 - 1,872 **(A206 p.128)**
- ‡ 23 - 30.67 - 7.67 - 6.14 - 36.84 - 49.12  
**(A207 p.147)**
- ‡ 191 - 164 - 137 - 1,010 **(A208 p.133)**
- ‡ 0 - 1 - 2 - 3 - 7 - 13 - 25 **(A209 p.126)**
- ‡ 0 - 1 - 2 - 3 - 6 - 1 - 0.11 - 7.11 - 0.78  
**(A210 p.103)**
- ‡ 152 - 142 - 932 - 332 **(A211 p.120)**
- ‡ 5,221 - 6,921 - 9,631 - 4,441 **(A212 p.113)**

## Phone numbers

### Phone numbers

You have to find out the right arrangement of the digits in the following phone numbers, deducing it from the clues: ♣ means one of the digits is correct AND in the right position, X means one of the digits is correct, but NOT in the right position. A digit cannot occur more than once in any phone number. <sup>7</sup>

- \* a) 9542 ♣
- b) 7613 XX
- c) 8239 ♣♣
- d) 6782 X **(A213 p.130)**

- \* a) 3986 ♣
- b) 3547 X
- c) 2548 XX
- d) 6591 ♣ **(A214 p.143)**

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<sup>7</sup> My advice is to start considering the digits in the right position, eliminating the digits that appear more than once in the same position, if the clues aren't always ♣ (in the first example i.e. 2 cannot be the right digit, as it appears both in the first and in the last items, but in the last item no digit is in the right position) as well as the digits that appear in different positions in items marked by ♣. In the numbers where the digits appear in the wrong position you have first of all to eliminate the digits that have already been eliminated in the numbers where the digits appear in the right position, then proceed by elimination.

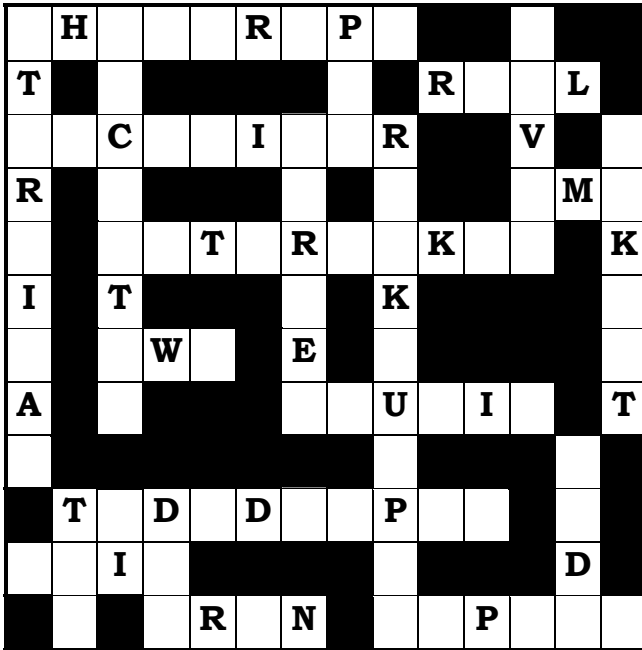


*Phone numbers*

- \* a) 6285 X
- b) 6157 ♣
- c) 1956 XX
- d) 5238 ♣♣ **(A215 p.151)**
  
- \* a) 4367 ♣
- b) 8459 X
- c) 5236 XX
- d) 1726 ♣♣ **(A216 p.171)**
  
- \* a) 8245 ♣
- b) 7649 ♣
- c) 6837 ♣
- d) 8312 XXX **(A217 p.112)**
  
- \* a) 9723 XX
- b) 6432 ♣
- c) 8617 XX
- d) 8641 ♣ **(A218 p.119)**
  
- \* a) 7632 ♣
- b) 4579 ♣
- c) 1352 XX
- d) 6548 XX **(A219 p.146)**

**Crosswords** <sup>8</sup>

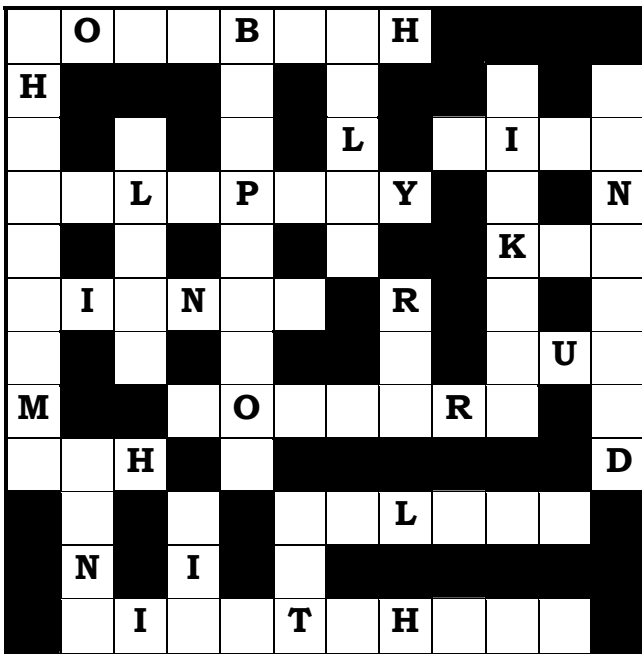
**BIRDS (A220 p.152)**



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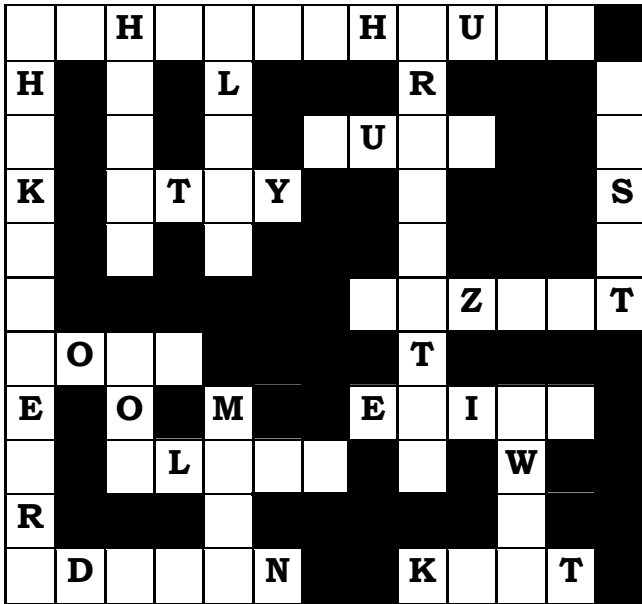
8 You can use reference books to solve these puzzles.

**VEGETABLE KINGDOM (A221 p.129)**

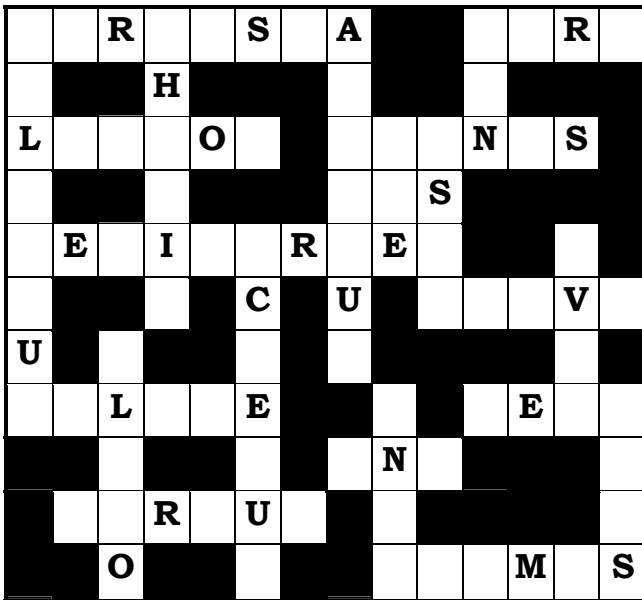


Crosswords

**PROMINENT PEOPLE (A222 p.161)**

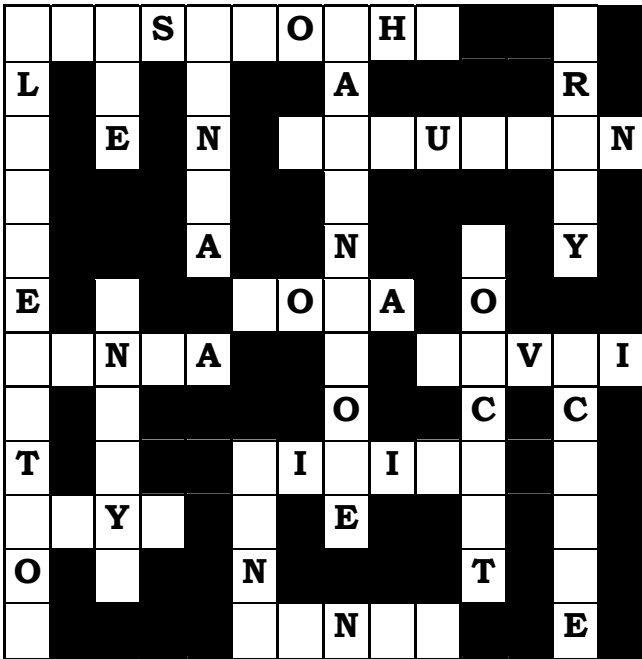


**GREEK MYTHS AND LEGENDS (A223 p.171)**

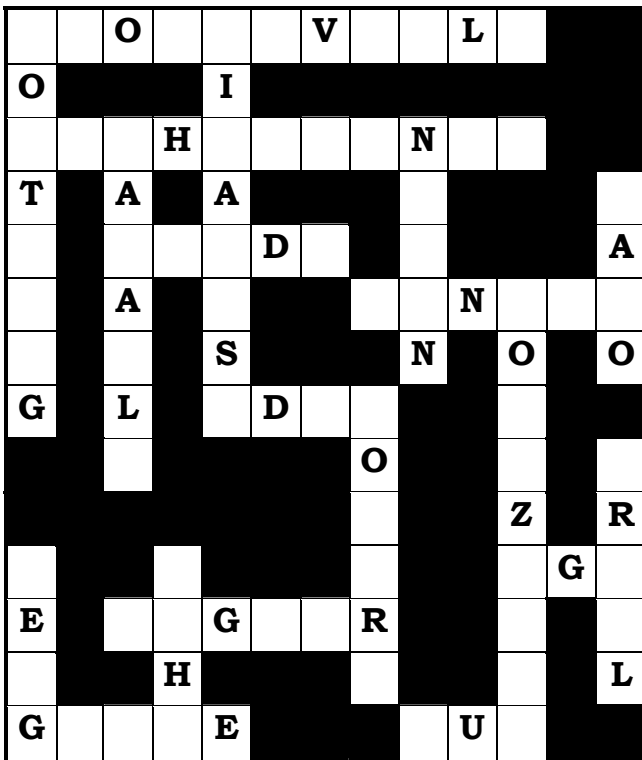


Crosswords

**POETRY (A224 p.127)**



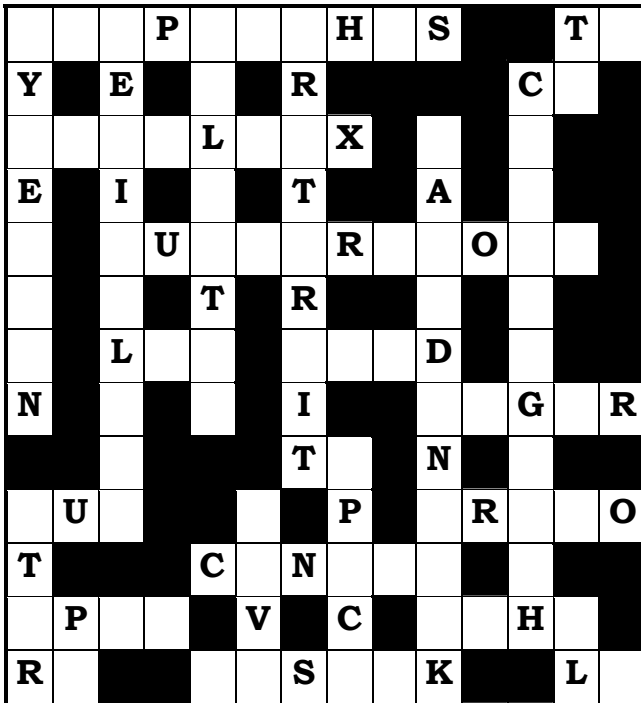
**OPERA COMPOSERS (A225 p.107)**



*Crosswords*

**ASTRONOMY (A226 p.117)**

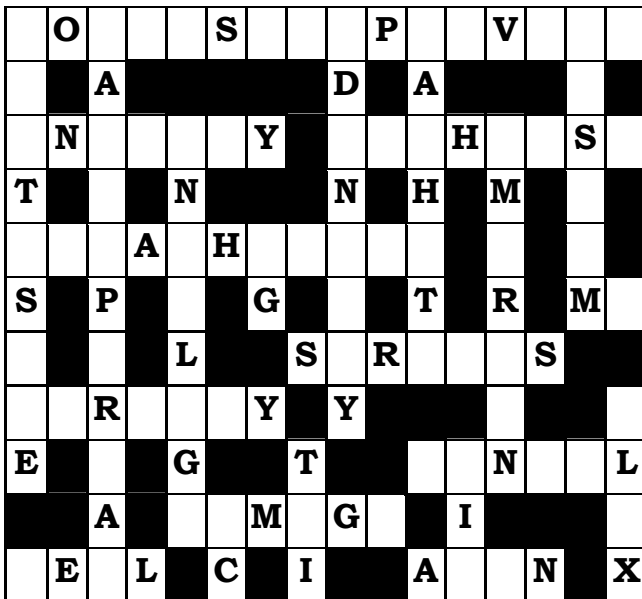
This puzzle may contain abbreviations, symbols  
or/and compounds.





Crosswords

**PHILOSOPHY (A227 p.167)**



**Words, words, words** <sup>9</sup>

Do you know the origin of the following words and what they mean (in case they are uncommon words)?<sup>10</sup>

- ▣ amaurosis (A228 p.131)
- ▣ aura (A229 p.144)
- ▣ baasskap (A230 p.150)
- ▣ Bourdon gauge (A231 p.127)
- ▣ calisaya (A232 p.136)
- ▣ catachresis (A233 p.116)
- ▣ catenulate (A234 p.109)
- ▣ clepsydra (A235 p.165)
- ▣ dinosaur (A236 p.159)
- ▣ dulcimer (A237 p.132)
- ▣ dulia (A238 p.145)
- ▣ emcee (A239 p.113)
- ▣ éminence grise (A240 p.134)
- ▣ enstatite (A241 p.148)
- ▣ eupepsia/eupepsy (A242 p.125)
- ▣ eureka (A243 p.163)
- ▣ feta (A244 p.141)
- ▣ fimbria (A245 p.110)

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<sup>9</sup> The answers to these curiosities are based on the Collins English Dictionary (1998), the Third Edition of the Macquarie Dictionary (1997), the Australian Oxford Dictionary (1999), the Oxford Dictionary of English Etymology (1966), and An Etymological Dictionary of Modern English by Ernest Weekley (1967).

<sup>10</sup> I will only explain the meaning of the most difficult words.

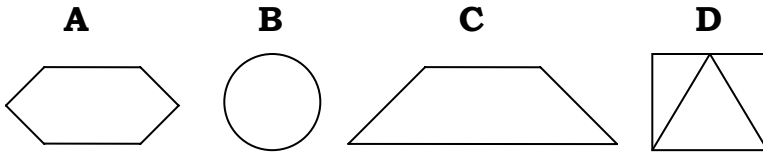
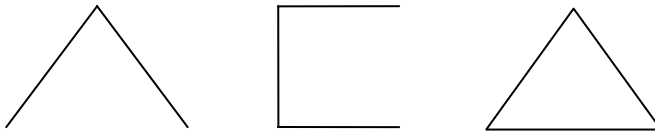
- ▣ gonfalon (A246 p.152)
- ▣ goodbye (A247 p.170)
- ▣ grampus (A248 p.162)
- ▣ hodoscope (A249 p.127)
- ▣ hogmanay (A250 p.139)
- ▣ hurricane (A251 p.125)
- ▣ ingurgitate (A252 p.111)
- ▣ jemima (A253 p.117)
- ▣ jersey (A254 p.133)
- ▣ kinin (A255 p.140)
- ▣ kylin (A256 p.123)
- ▣ lemur (A257 p.168)
- ▣ ligand (A258 p.162)
- ▣ maranta (A259 p.135)
- ▣ mastic (A260 p.109)
- ▣ morganatic (A261 p.115)
- ▣ narthex (A262 p.129)
- ▣ neanic (A263 p.149)
- ▣ origin (A264 p.168)
- ▣ osteomalacia (A265 p.163)
- ▣ pangolin (A266 p.111)
- ▣ panmixia (A267 p.104)
- ▣ pavis/pavise (A268 p.165)
- ▣ peltast (A269 p.135)
- ▣ piet-my-vrou (A270 p.147)
- ▣ pis aller (A271 p.122)

- ▣ pretty (A272 p.107)
- ▣ psychedelic/psychodelic (A273 p.111)
- ▣ pupiparous (A274 p.145)
- ▣ qi gong (A275 p.153)
- ▣ qwerty (A276 p.164)
- ▣ rondeau (A277 p.160)
- ▣ roux (A278 p.128)
- ▣ rowel (A279 p.141)
- ▣ strigose (A280 p.139)
- ▣ stultify (A281 p.104)
- ▣ subitize (A282 p.116)
- ▣ talisman (A283 p.147)
- ▣ totipalmate (A284 p.130)
- ▣ ushabti (A285 p.137)
- ▣ usquebaugh (A286 p.153)
- ▣ vaudeville (A287 p.171)
- ▣ vile (A288 p.162)
- ▣ wheedle (A289 p.126)
- ▣ wilco (A290 p.125)
- ▣ xerarch (A291 p.139)
- ▣ xystus (A292 p.108)
- ▣ yaupon/yapon (A293 p.113)
- ▣ zibet (A294 p.153)
- ▣ zoril/zorilla/zorille (A295 p.134)
- ▣ zouk (A296 p.144)

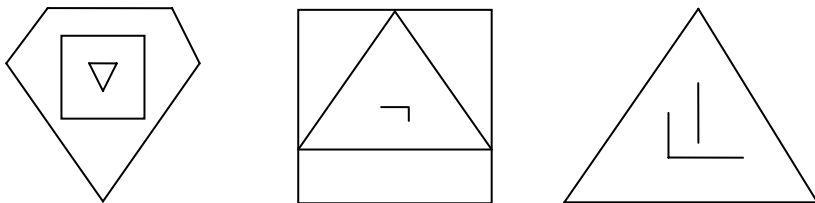
**Culture-fair puzzles** <sup>11</sup>

\* Which figures come next in the following series?

**(A297 p.166)**



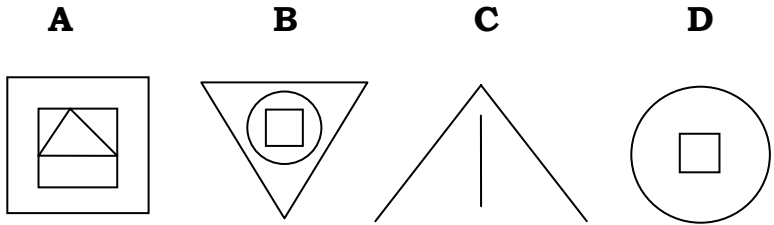
**(A298 p.158)**



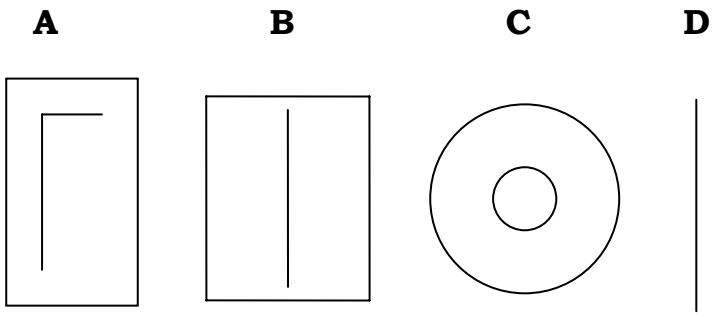
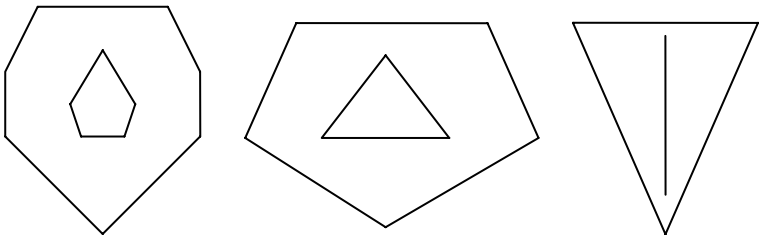
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<sup>11</sup> In this chapter, I have included three kinds of puzzles: logical sequences, in which you have to find out the figure that logically continues the series, analogies, and series of matrices.

*Culture-fair puzzles*

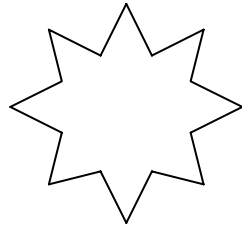
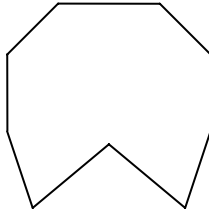
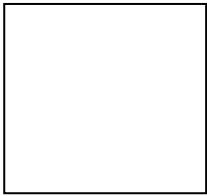


**(A299 p.147)**



*Culture-fair puzzles*

**(A300 p.113)**

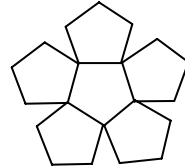
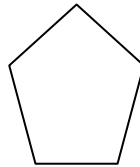
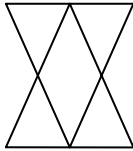
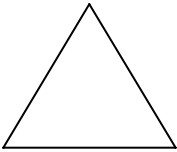


**A**

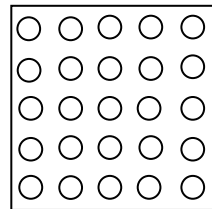
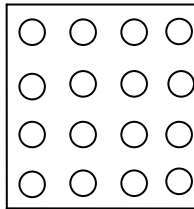
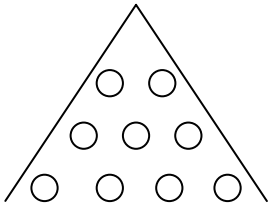
**B**

**C**

**D**

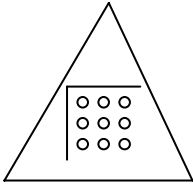


**(A301 p.108)**

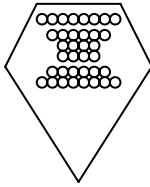


*Culture-fair puzzles*

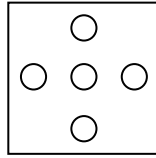
**A**



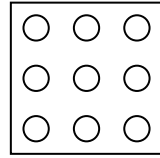
**B**



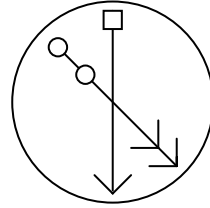
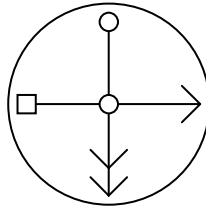
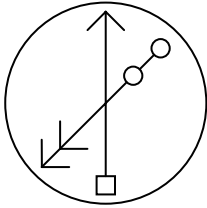
**C**



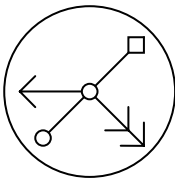
**D**



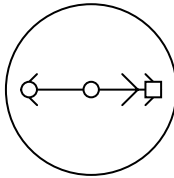
**(A302 p.153)**



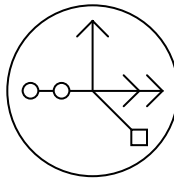
**A**



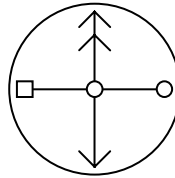
**B**



**C**



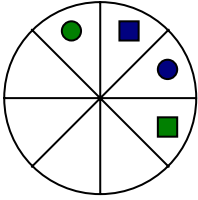
**D**



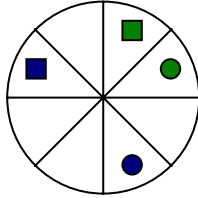


*Culture-fair puzzles*

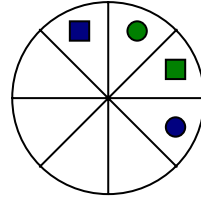
**(A303 p.170)**



**A**

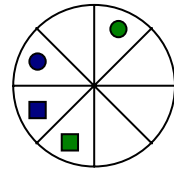
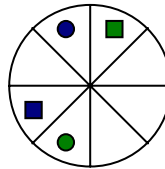
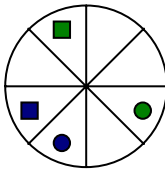
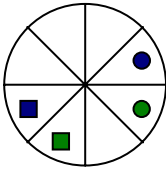


**B**



**C**

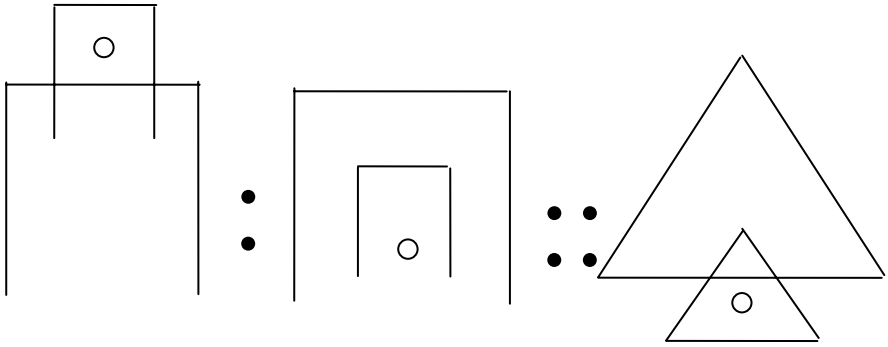
**D**



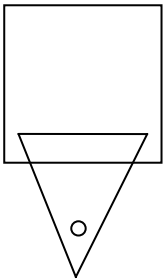
*Culture-fair puzzles*

What is the analogy between the following figures?

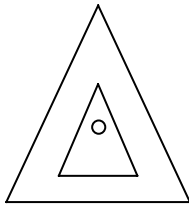
**(A304 p.163)**



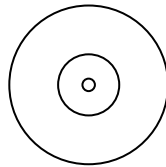
**A**



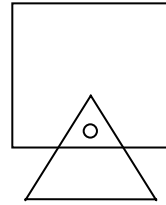
**B**



**C**

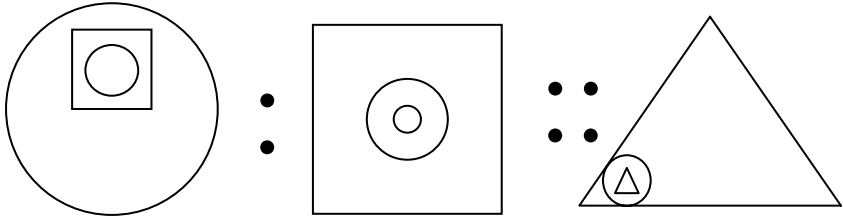


**D**

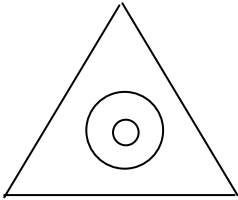


*Culture-fair puzzles*

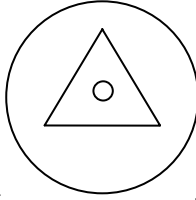
**(A305 p.132)**



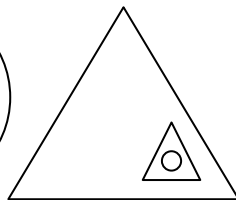
**A**



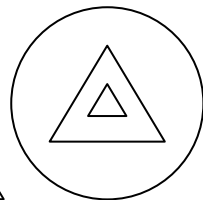
**B**



**C**



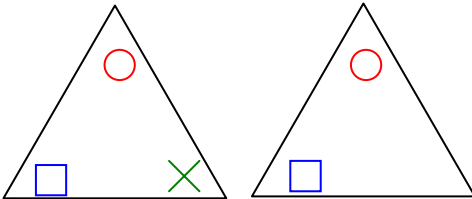
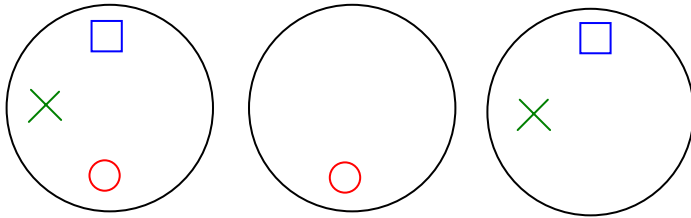
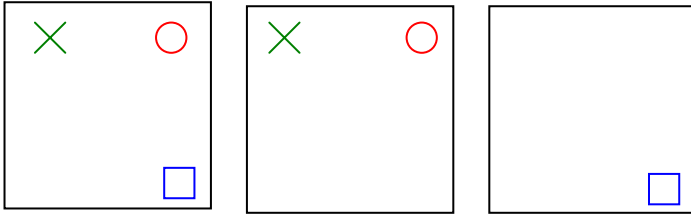
**D**



*Culture-fair puzzles*

Which figures complete the following matrices?

**(A306 p.146)**

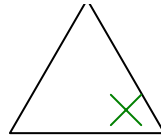
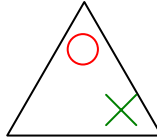
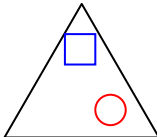
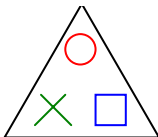


**A**

**B**

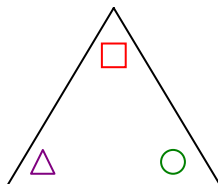
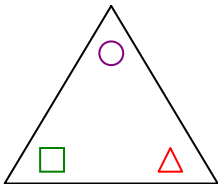
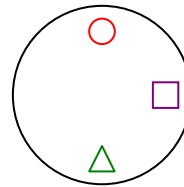
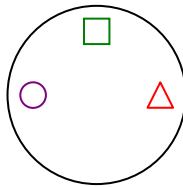
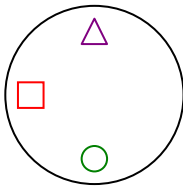
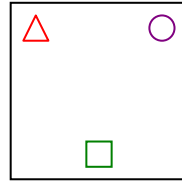
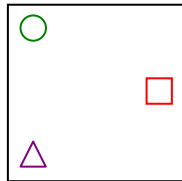
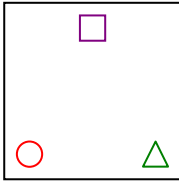
**C**

**D**

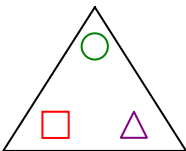


*Culture-fair puzzles*

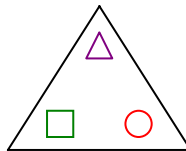
**(A307 p.117)**



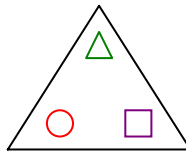
**A**



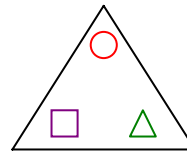
**B**



**C**

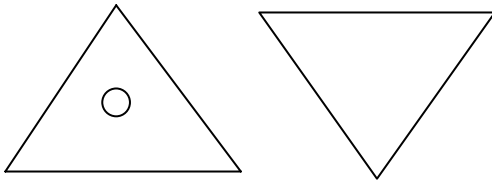
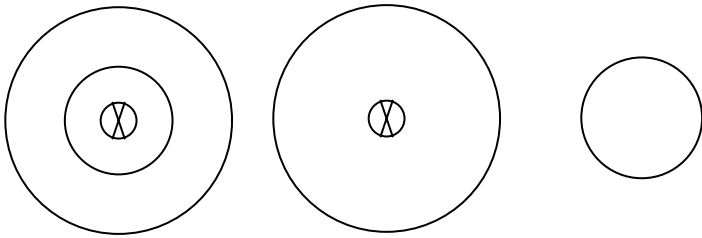
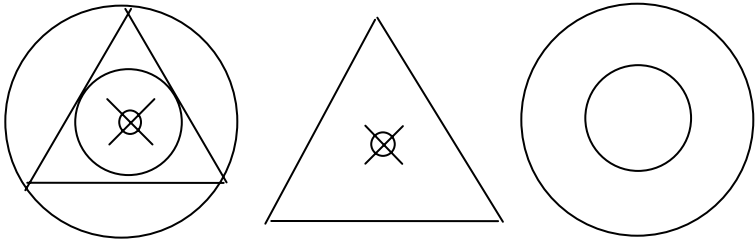


**D**



*Culture-fair puzzles*

**(A308 p.103)**

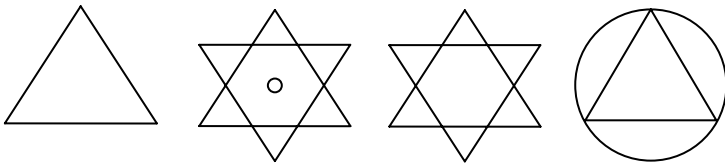


**A**

**B**

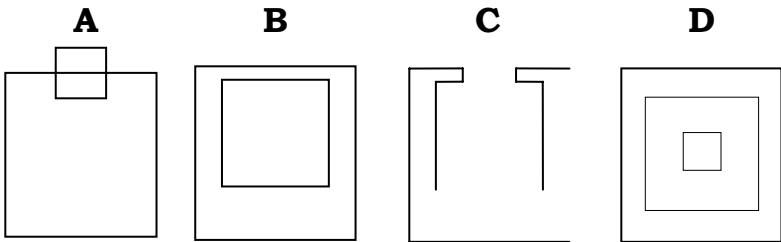
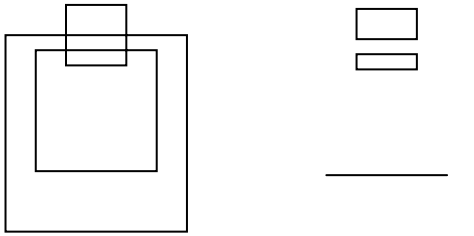
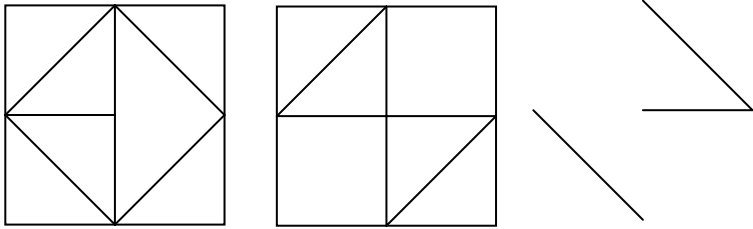
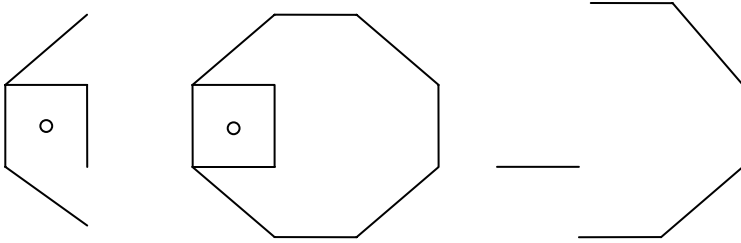
**C**

**D**



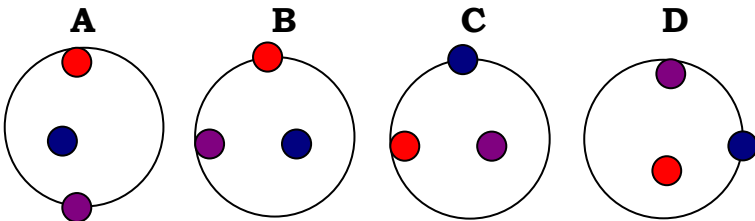
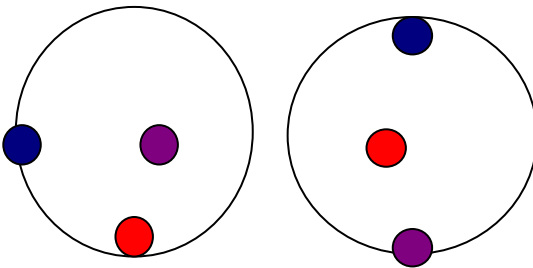
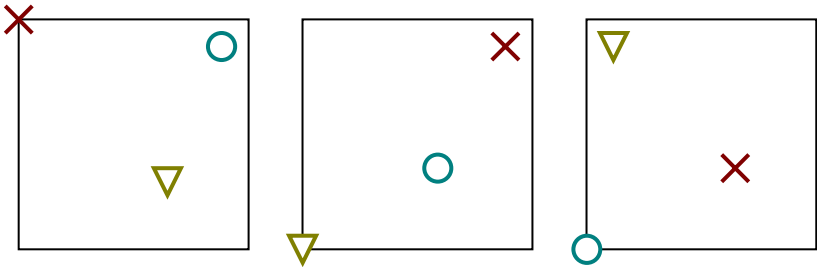
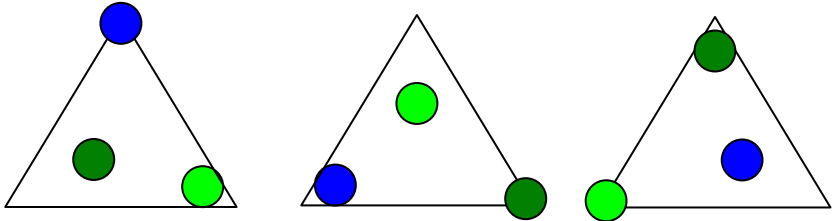
*Culture-fair puzzles*

**(A309 p.167)**



Culture-fair puzzles

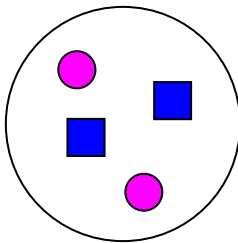
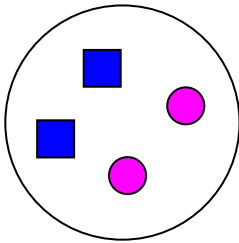
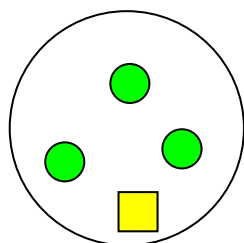
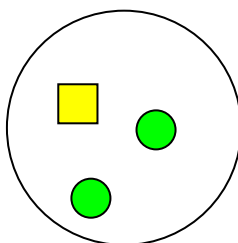
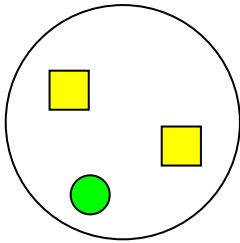
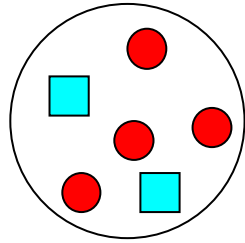
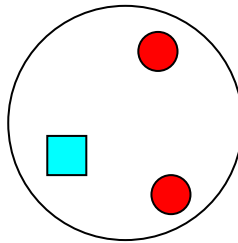
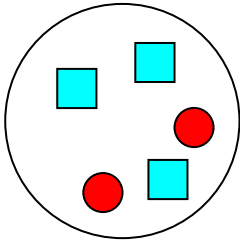
(A310 p.136)





Culture-fair puzzles

(A311 p.141)

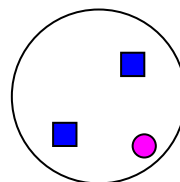
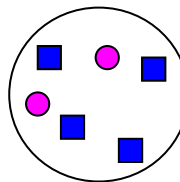
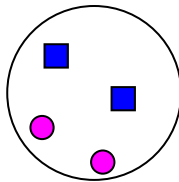
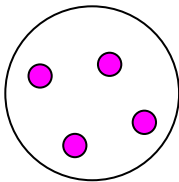


**A**

**B**

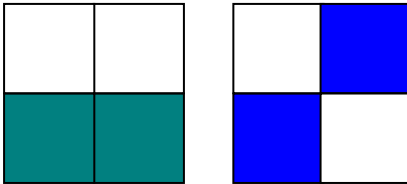
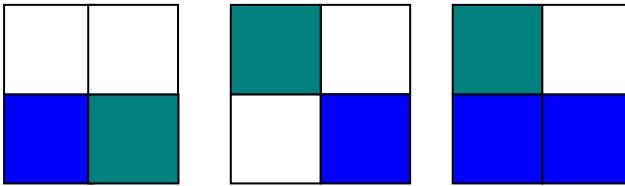
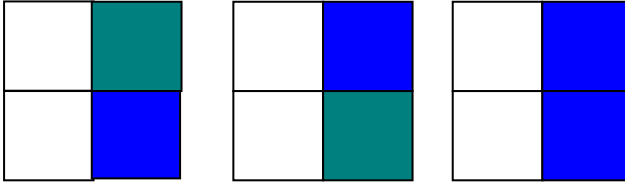
**C**

**D**



*Culture-fair puzzles*

**(A312 p.130)**

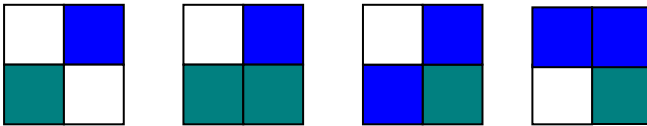


**A**

**B**

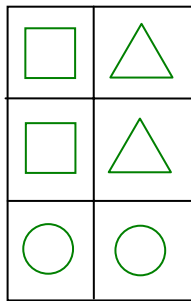
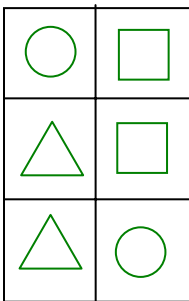
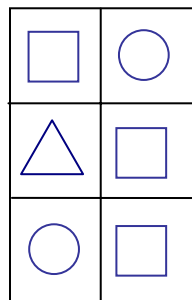
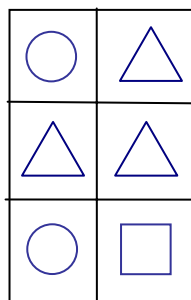
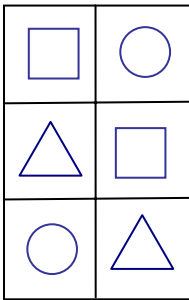
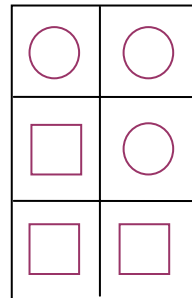
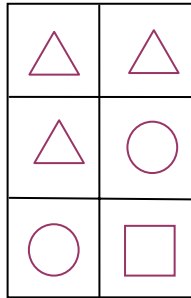
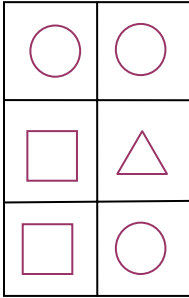
**C**

**D**



Culture-fair puzzles

(A313 p.161)

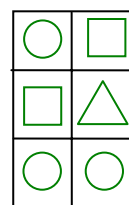
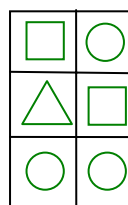
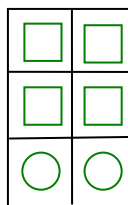
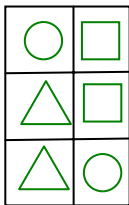


**A**

**B**

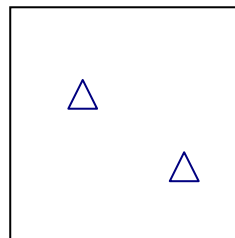
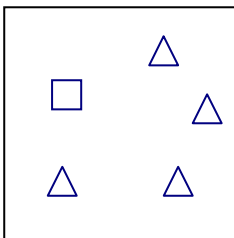
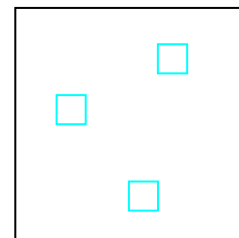
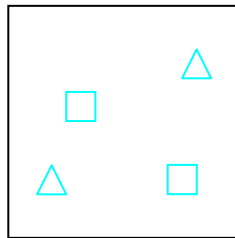
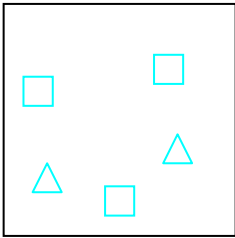
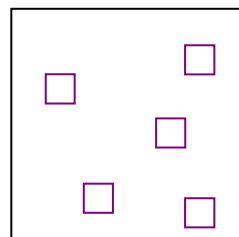
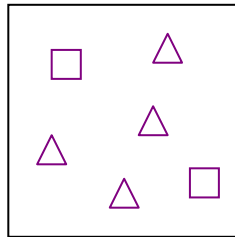
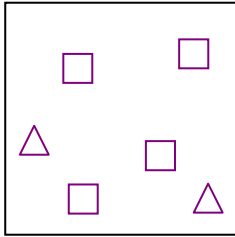
**C**

**D**



Culture-fair puzzles

(A314 p.116)

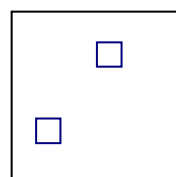
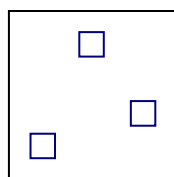
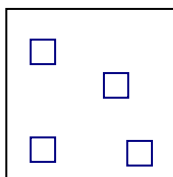
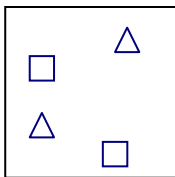


**A**

**B**

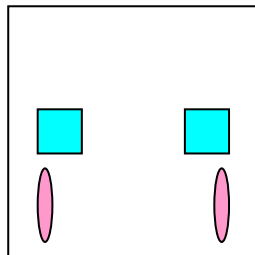
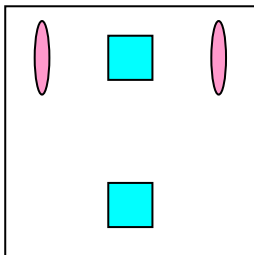
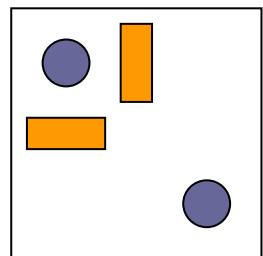
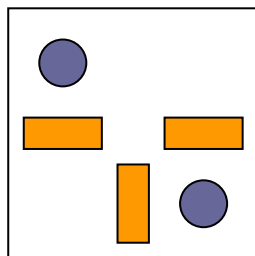
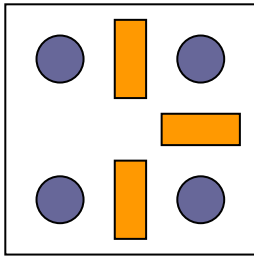
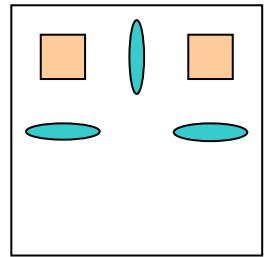
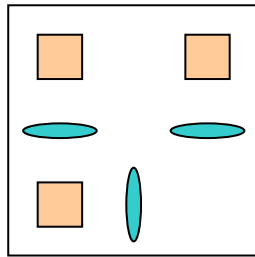
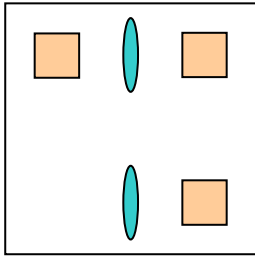
**C**

**D**



Culture-fair puzzles

(A315 p.111)

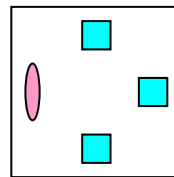
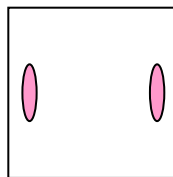
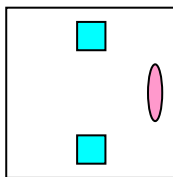
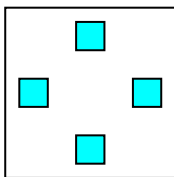


**A**

**B**

**C**

**D**



**Answers**

**A70:** They should give it up. Indeed, they would need  $36 \frac{1}{2}$  minutes to get to the station, as they can only reach a maximum speed of 57.5 km/h. With the first invention, the car's speed is increased by 25%, reaching 50 km/h. Then the second invention increases the speed of 50 km/h by 15%, so that the final speed of the car will be 57.5 km/h.

**A107:** Acute was last, Brilliant first, Considerate third and Discerning second. From Brilliant's statement, it is clear that Discerning cannot be last (otherwise he couldn't score better than Considerate). This obviously implies that Acute cannot be third. Can Discerning be third? If he is third, Brilliant cannot be first, according to Acute's statement, so he can only be either second or fourth. But according to Considerate's statement, if Brilliant is not second, he is not second either, so it must be Acute who is second (we know that Discerning is third), so Brilliant must be fourth (according to Acute, if he himself is second, Considerate will not be fourth), and Considerate first (by elimination). But Brilliant says that Discerning will score better than Considerate, so we have to discard the possibility that Discerning is third. Can he be first? If he is first, Acute will be third, according to what Discerning says himself,

## Answers

but we already know that Brilliant and Considerate cannot be second, so the hypothesis that Discerning is first doesn't hold up either. Can he be second? If he is second, Considerate cannot be second, so Acute cannot be first, according to Considerate. But according to Discerning, Acute cannot be third either, so he can only be fourth. We already know that Discerning scored better than Considerate, so Considerate must be third, and Brilliant first.

**A138:** Amanita (it is a fungus, the others are algae)

**A34:** "Fortitude": every letter of "dierurysw" is one to the left of the letters of "fortitude" on the English keyboard.

**A172:** 1: the sum of the first two digits in the sequence is 10 (6+4), then comes 9 (3+6), 8 (4+4), 7 (2+5), 6 (4+2), 5 (2+3), 4 (3+1), 3 (1+2), 2 (1+1). So the next number must be 1.

**A308:** B: two figures superimposed form the third.

**A118:** Cart (it's the only one that uses an animal instead of a motor as motive power)

**A210:** -6.44: first add the last three numbers (starting with  $3=0+1+2$ ), then multiply the last three numbers, then subtract the last number by the two numbers immediately preceding it, then divide the last number by the sum of the two numbers immediately preceding it, then start again. -6.44 is

## Answers

(0.78 - 7.11 - 0.11).

**A23:** Annette is 15, Barbara 13 and Cecilia 12.

**A267:** In population genetics, it means random mating within an interbreeding population. It first appeared in the 20<sup>th</sup> century, from New Latin, from Greek *pan-*, “including or relating to all parts or members”, + *mixis*, “act of mating”.

**A281:** It can mean “to make useless or futile”, “to cause to appear absurd or futile” or “to prove someone to be of unsound mind and thus not legally responsible”. It first appeared in the 18<sup>th</sup> century and comes from Latin *stultus*, “stupid”, + *facere*, “to make”.

**A135:** Four (“low” has the same letters as “fowl” minus “f”, “Wolfe” has the same letters of “fowl” plus “e”)

**A113:** Enlightened used the olive-green bike and owns the emerald one; Erudite used the verdigris bike and owns the aquamarine one; Grave used the aquamarine bike and owns the olive-green one; Literate used the malachite bike and owns the verdigris one; Sage used the emerald one and owns the malachite one. Please draw your usual table.



## Answers

	En	Er	G	L	S
a <sub>u</sub>					
e <sub>u</sub>					
m <sub>u</sub>					
o <sub>u</sub>					
v <sub>u</sub>		√			
a <sub>o</sub>					
e <sub>o</sub>					
m <sub>o</sub>					
o <sub>o</sub>					
v <sub>o</sub>	x				

En is Enlightened, Er Erudite, G Grave, L Literate and S Sage. The letters on the left obviously refer to the bikes' colours: aquamarine, emerald, malachite, olive-green and verdigris. A "u" next to them means "used", an "o" means "owned". The only fact we know for sure is that Erudite used the verdigris bike, and that this doesn't belong to Enlightened. As we also know that the owner-user pair for a bike never corresponds to the user-owner pair for another bike, and as we know from the sixth clue that Grave's bike was used by Enlightened, obviously Enlightened must own either the bike used by Literate or the bike used by Sage (we know from the fifth clue that he doesn't own the bike used by Erudite). In the first case, according to the

## *Answers*

last clue, Literate owns the bike used by Sage. By elimination we come to the result that Erudite owns the bike used by Grave, and Sage the one used by Erudite. According to the fourth clue, the emerald bike would be the one owned by Grave (Literate used the bike of Enlightened, and Enlightened used Grave's), and the malachite bike the one owned by Literate (second clue). But then we would have a problem with the first clue, as Sage would own the verdigris bike, and Erudite and Enlightened the aquamarine and the olive-green one (although not necessarily in this order), and they cannot be a pair, according to our results. So Enlightened owns the bike used by Sage (and not the bike used by Literate, as we had assumed for our first scenario), and Sage the bike used by Literate (last clue). Erudite owns the one used by Grave, and Literate the verdigris one, used by Erudite (by elimination). The emerald bike belongs to Enlightened (fourth clue), the malachite bike to Sage (second clue). Finally, according to the first clue, Erudite owns the aquamarine bike, and Grave the olive-green one (Grave cannot own the aquamarine bike because he used it).

**A41:** 9 times as fast. If you call the last fourth of the route X, you will easily see that if he needs 3 times longer for X (walking) than for 3 X (by car), his car must be 9 times as fast.

*Answers*

**A144:** Chandelier: all the other words refer to pieces of furniture on the floor.

**A272:** A pretty common word, but look at the different meanings it originally had: *prættig* in Old English, meaning “clever”, *prattich*, “obstinate, capricious” in Middle Low German, *prettig* in Dutch, “glad, sportive, humorous”, and *prettugr* in Old Norse, meaning “cunning”. A curious development, as is the case with most adjectives which can be applied to persons (*nice, proud, quaint*, etc.).

**A225:**

L	E	O	N	C	A	V	A	L	L	O		
O				I								
R	A	C	H	M	A	N	I	N	O	V		
T		A		A				Y				L
Z		V	E	R	D	I		M				A
I		A		O			H	A	N	D	E	L
N		L		S				N		O		O
G		L		A	D	A	M			N		
		I					O			I		E
							Z			Z		R
B			H				A			E	G	K
E		W	A	G	N	E	R			T		E
R			H				T			T		L
G	A	N	N	E				C	U	I		

**A178:** 74: the sums of the two digits of each number in the sequence are consecutive prime

## Answers

numbers starting with 2 ( $1+1 = 2$ ,  $1+2 = 3$ ,  $3+2 = 5$ , and so on).

**A16:** If the signs were both false, we would have a contradiction: if it is false that at least one spaceship contains a key, both of them must obviously conceal a black hole, but then B would be true, so this cannot be. Can both signs be true? They certainly can. So A conceals a black hole and B a key.

**A152:** C: the difference between the number of sides of the figures intersecting is one in the other cases.

**A186:** 91: all the numbers are a combination of 1, 6 and 9.

**A292:** In ancient Greece, it was a portico used by athletes for exercise in winter. In ancient Rome, it meant a garden walk or terrace. It first appeared in the 17<sup>th</sup> century and comes from Latin, from Greek *xustos*, “smooth(ed)”, from *xuein*, “scrape”, referring to “polished floor”.

**A29:** Don ate seven peas at the sea.

**A163:** 117: all numbers are multiples of 13, but the others are 13 multiplied by a prime number, 117 is  $13 \times 9$ .

**A301:** B: the number of sides of the figures is increased by 1, the number of balls contained in each figure is the square of the number of sides of

## Answers

the respective figure increased by 1.

**A260:** An aromatic resin obtained from the mastic tree and used as an astringent and to make varnishes and lacquers. It first appeared in the 14<sup>th</sup> century via Old French from Late Latin *mastichum*, from Latin, from Greek *mastikhe*, resin used as chewing gum, from *mastikhan*, to grind the teeth.

**A62:** 33 (12+20+1)

**A234:** It means “formed in a row or chain” (of certain spores). It was first used in the 19<sup>th</sup> century and comes from Latin *catenula*, diminutive of *catena*, “chain”.

**A11:** It is new moon. A is a normal, B a sane genius and C an insane genius. C cannot be telling the truth, because sane geniuses lie at new moon. So he must be lying, in which case we have three scenarios: a) he is not a sane genius and it is new moon; b) he is not a sane genius and it is full moon; c) he is a sane genius and it is full moon. We have to discard the third scenario because sane geniuses always tell the truth at full moon. If he is not a sane genius and it is full moon, he can be either a normal or an insane genius. Now we see that B’s statement is false (because “C is telling the truth” is false), and A’s statement is true if he is a normal (someone must tell the truth). But it is full moon, and both B and C are lying, so one of them is an insane genius and one of them a normal, which

## Answers

obviously means that A cannot be a normal. So we also have to discard this scenario. What happens if C is not a sane genius and it is new moon? First of all, if C is lying and it is new moon (and he is not a sane genius), he must be an insane genius. Again, B's statement is false, and A's statement is true if he is a normal. This time, however, the scenario holds up: it is new moon, C is an insane genius, B a sane genius, and A a normal.

**A102:**  $67$  : any fraction with 1 for numerator and any odd number  $(2n - 1)$  for denominator increases to  $n$  times its value when its denominator is added to its numerator and to its denominator.

**A245:** Used in botany and zoology, it means a fringe or fringe-like margin or border, in particular at the opening of the Fallopian tubes. It was first used in the 18<sup>th</sup> century, from Late Latin, from Latin *fimbriae*, "threads, shreds". According to the Oxford Dictionary of English Etymology, "fimbriated" was used in the 15<sup>th</sup> century in the Book of St. Albans.

**A89:**  $21.74 (1 + 8/7 + 8/6 + 8/5 + 8/4 + 8/3 + 8/2 + 8/1)$

**A132:** Tall (the other words can be derived from each other by changing a letter)

**A202:** 1.16: starting with 21, the sequence is obtained by dividing 21, 32, 43, 54, etc. by their reverse.

## Answers

**A315:** A: the third figure is the result of parts in common and parts not in common between the first two.

**A252:** It means “to swallow (food) with greed or in excess”. It was first used in the 16<sup>th</sup> century and comes from Latin *ingurgitare*, “to flood”, from *in*, “into” + *gurgēs*, “abyss, gulf”.

**A96:** It will take Fatty four times as long as Slimmy. The helix is only two times as long as the straight path, as it corresponds to the hypotenuse of a 3-4-5 right triangle of a certain height  $x$  (the straight path). The hypotenuse of such a triangle is  $2x$ .

**A119:** Geld (all the vowels of the other words are “a”s)

**A158:** 715: 343 is the cube of 7; 729 the cube of 9.

**A273:** It made its first appearance in the 20<sup>th</sup> century, from psyche- (from Greek *psykhē*, “spirit, breath”) + Greek *delos*, “visible”.

**A136:** Tanker (not a poem)

**A266:** Any mammal of the order *Pholidota* found in tropical Africa, South Asia, and Indonesia, having a body covered with overlapping horny scales and a long snout specialized for feeding on ants and termites. It was first used in the 18<sup>th</sup> century, coming from Malay *peng-goling*, from *goling*, “to roll over”, referring to its ability to roll into a ball.

**A56:** Tantalizing builds the lowest castle, followed

## Answers

by Strange, Ludwig and Unique, who builds the highest castle.

**A217:** The number is 1239. 8 cannot be right because it occupies the same position in *a*) and *d*), so we know from *d*) that we need 3, 1 and 2, although obviously not in this order. So the right digit in *a*) must be 2, and the right digit in *c*) 3. This obviously means, since only one digit is right in *a*) and *c*), that the other digits are wrong. So 4, 6 and 7 cannot be right in *b*). This means that the right digit in *b*) is 9. Now we only need the first digit, which according to *d*) must be 1.

**A1:** A is a normal, B a sane genius and C an insane genius. If A is telling the truth, B's statement is true (because "if A is a normal" is false). So he must be green (because A is blue and normals – yellow creatures – always lie). This obviously means that C must be yellow. But this is not possible because normals never tell the truth (if both "I am yellow" and "A's statement is true" are true, C's assertion is true). So A must be lying. In this case he must be yellow (obviously he cannot be green because sane geniuses always tell the truth). Now B's statement can be either true or not depending on whether he is green or not. C's statement, on the other hand, cannot be true (because A lies), so he must be blue, and B must obviously be green (and his statement true).



## Answers

**A300:** D: the numbers of sides of the figures are the squares of 2, 3, 4 etc.

**A212:** 1,251: the sequence is composed of the squares of the numbers from 35 to 39 with the digits in reverse order.

**A47:** 7

**A193:** 7: you have to reverse the digits of the numbers in the sequence in order to understand the problem. So we have 2,401; 343 and 49. 2,401 is  $7^4$ , 343 is  $7^3$ , 49 is  $7^2$ , so the number that continues the sequence is obviously 7.

**A239:** It is a master of ceremonies. It is also used as a verb, “to act as master of ceremonies”. It comes from the abbreviation MC and was first used in the 20<sup>th</sup> century.

**A293:** It is a southern US evergreen holly shrub, *Ilex vomitoria*, with spreading branches, scarlet fruits, and oval leaves, used as a substitute for tea. It comes from Catawba *yopun*, “shrub”, diminutive of *yop*, tree.

**A112:** First: Ingenious (white hat); second: Laborious (blue hat); third: Keen-Witted (black hat) and fourth Judicious (grey hat). Please draw your usual cell chart and consider the following facts: If Ingenious arrives before the member who wears a blue hat, and this member is not Judicious, obviously he must be either Keen-Witted or

## *Answers*

Laborious (first clue). From the fifth clue, we know that Judicious doesn't arrive first, and we also know that he is not second (from the fourth clue), so he must be either third or fourth. Let's assume that Judicious arrived third. Then the order of arrival would be: Ingenious, Keen-Witted, Judicious and Laborious (Laborious didn't arrive just before Judicious, fifth clue). Now we know from the fourth clue that Keen-Witted cannot be second, so we have to discard the possibility that Judicious is third, and we have to start again with Judicious as fourth. In this case the order of arrival would be: Ingenious, Laborious, Keen-Witted and Judicious. (The order of arrival cannot be Laborious, Ingenious, Keen-Witted and Judicious, as Ingenious must be the member with the white hat, and the member with the white hat cannot be second, according to the fourth clue. Moreover, if this were the order of arrival, Laborious would be the member with a white hat, an obvious contradiction.) This time, if we go through the clues, we cannot find any contradiction in the order of arrival. Let's see if we can also match the colours of the hats. Laborious is obviously the one with the blue hat (first clue). Then we know from the fourth clue that the member with the white hat is not Judicious, not the member who arrived second or Keen-Witted. So it must obviously be Ingenious who wears a white hat. Now we know from the second

## Answers

clue that Keen-Witted doesn't wear a grey hat, so it must be Judicious who wears a grey hat, and Keen-Witted wears a black hat.

**A159:** 2,401: all the other numbers are prime numbers raised to a power that is also a prime number (2,197 is  $13^3$ ; 78,125 is  $5^7$ ; 343 is  $7^3$ ; 161,051 is  $11^5$ ).

**A261:** It is an adjective meaning "of or designating a marriage between a person of high rank and a person of low rank, by which the latter is not elevated to the higher rank and has no rights to the succession of the higher party's titles, properties, etc.". It was first used in the 18<sup>th</sup> century and comes from the Medieval Latin phrase *matrimonium ad morganaticum*, "marriage based on the morning-gift" (a token present after consummation representing the husband's only liability). *Morganatica* ultimately comes from Old High German *morgan*, "morning"; compare Old English *morgengiefu*, "morning-gift".

**A19:** Sign C is true, the other two are false. This means that the key is in spaceship A. Let's see why. If A is true, B and C are false, but then we have a contradiction between B and C, so we have to discard this possibility. Can B be true? No, because if B is true, spaceship B contains a key, but then we see that spaceship A would also contain a key (its sign is false because at the most one of the signs is

## Answers

true), and this would contradict the Master's conditions. Can all three signs be false? No, otherwise we have a contradiction between B and C, as we have already seen. We have only one possibility left, the possibility that C is true and the other two false. We can easily recognize that in this case the Master's conditions are perfectly met, and that the key is in spaceship A.

**A127:** Lion (the other words contain an odd number of letters)

**A314:** B: subtract the squares and add the triangles (two triangles form a square).

**A78:** No. She made an average of 47. If  $x$  is the average,  $(1/4 \div 35) + (1/4 \div 45) + (1/4 \div 50) + (1/4 \div 70) = 1/x$

**A131:** Spacewalk (the only vowels of the other words are "o"s)

**A233:** It means an improper use of words. It was first used in the 16<sup>th</sup> century and comes from Latin, from Greek *katachresis*, "misuse", from *katakhresthai*, from *cata-*, "down" (in position, quantity or degree), or "wrongly, badly", + *khresthai*, "to use".

**A282:** It is a term used in psychology which means "to perceive the number of a group of items at a glance and without counting". It first appeared in the 20<sup>th</sup> century and comes from Latin *subitus*, "sudden", and *-ize*, "(to cause) to become", from Old

## Answers

French *-iser*, from Late Latin *-izare*, from Greek *-izein*.

**A226:**

H	I	P	P	A	R	C	H	U	S			T	E
Y		E		P		R						C	L
P	A	R	A	L	L	A	X		R		H		
E		I		A		T			A		R		
R		H	U	N	T	E	R	S	M	O	O	N	
I		E		T		R			S		N		
O		L	M	I		P	O	N	D		O		
N		I		C		I			E	L	G	E	R
		O				T	E		N		R		
S	U	N			P		P		D	R	A	C	O
T				C	A	N	A	L	I		P		
A	P	S	E		V		C		S	A	H	A	
R	U			V	O	S	T	O	K			L	U

**A253:** Made-up tie (19<sup>th</sup> century) or (plural) elastic-sided boots (20<sup>th</sup> century). It comes from the female name Jemima, the eldest of the daughters of Job (Job, XLII 14).

**A307:** C: the small figures rotate clockwise, the colours anticlockwise.

**A50:** 10 seconds:  $0.5 + 0.58 \text{ km/h} = 1,080 \text{ m/h} = 0.3 \text{ m/sec}$

**A124:** Meg (the other words can be derived from each other by changing a letter or anagramming)

## Answers

**A63:** He has four friends: one studies chemistry, one nuclear physics, one mathematics and one astronomy.

**A187:** 1.947:  $1/3$  is added to the first term of the sequence to obtain the second term, then  $1/4$  is added to the number thus obtained, then  $1/5$ , and so on.

**A71:** He doesn't have to open any door at all. We know that all signs are incorrect, so Philosophy must be behind door B. Then Astronomy must obviously be behind door A, and Poetry behind door C.

**A90:** 3: altogether, they have 30 litres, so, if Bright contributes with 6 litres, which is  $1/5$  of the total, he will receive  $1/5$  of  $7 + 8 = 15$  litres. Of course, geniuses don't make the mistake of just dividing by four...

**A6:** A is an insane genius, B a normal and C a sane genius. If A's statement is false, both B's and C's statements are false, but this cannot be because someone must tell the truth. If A's statement is true, on the other hand, at least one, and possibly both, of B's and C's statements must be true. Obviously they cannot both be true because someone must lie. As we know that C's statement is true if A's statement is true, the only possibility we have is that B's statement is false. This means that his "if"-statement is true and his "then"-statement

## Answers

false. Now we can clearly see that A is an insane genius, B a normal and C a sane genius.

**A153:** 7 (it is not a triangle number)

**A164:** 2,415: the other numbers are cubes (of 6, 8, and 12 respectively).

**A204:** 221: starting with 2 (the first prime number), the sequence is obtained by multiplying every two consecutive prime numbers: 6 is  $2 \cdot 3$ , 15 is  $3 \cdot 5$ , 35  $5 \cdot 7$ , etc.

**A218:** The number is 7531. 6 and 8 are obviously wrong, as they appear in the same position in c) and d). This means that 1 and 7 in c) are correct, but not in the right position. So 1 is the right digit in d), and 4 cannot be right. So 3 must be the right digit in b), as we already know that 6 and 4 are wrong, and 2 cannot be right either, as the correct digit in the last position is 1. The two right digits in a) must be 3 and 7, according to our results so far. 7 cannot be in the second position, so it must be in the first. By elimination, only 5 can be in the second position, so the number we were looking for is 7531.

**A97:** Three times as fast: subtract their speeds when they go in the same direction, add them when they go in opposite directions.

**A171:** 20: 5 is  $1 + 2^2$ ; 11 is  $2 + 3^2$ , and so on. So the number after 11 should obviously be  $3 + 4^2 =$

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19, and not 20.

**A211:** 922: the sequence is composed of prime numbers (from 229 to 251 in reverse order) with reverse digits.

**A203:** 1,695: starting with 10, you have to add to each number (10, 11, 12, 13 etc.) the square of its reverse ( $10+1^2=11$ ,  $11+11^2=132$ ,  $12+21^2=453$ , etc.).

**A35:** “Entropy”: Consider the positions of the letters of the alphabet and add consecutive prime numbers (starting with 2, the first one) to each letter, so that E (the fifth letter) becomes G (the seventh letter), N (the fourteenth letter) becomes Q (the seventeenth letter) and so on (when you reach the last letter of the alphabet, you have to start again with A).

**A179:** 124: the sequence is composed of the squares of consecutive prime numbers starting with 2 plus 3.

**A108:** Lunatic speaks Norwegian and Occitanian, Madcap Macedonian and Occitanian, Neophyte Ladin and Portuguese, Orthodox Norwegian and Portuguese, and Perfectionist Ladin and Macedonian. Please draw a cell chart. Tick off Macedonian for Madcap and Occitanian for Lunatic. Cross off Ladin and Portuguese for Lunatic and Ladin and Macedonian for Orthodox. Now, if Lunatic speaks two alphabetically consecutive languages, the other language he speaks is obviously Norwegian. Orthodox, on the other side,



## Answers

doesn't speak two alphabetically consecutive languages, so he must speak Norwegian and Portuguese. So Norwegian is already spoken twice (by Lunatic and by Orthodox), and cannot be spoken by anybody else. Neophyte doesn't speak Occitanian (he doesn't have any language in common with Lunatic), and doesn't speak two alphabetically consecutive languages, so he speaks Portuguese, which is then already spoken twice. His second language is either Ladin or Macedonian. If it is Macedonian, Perfectionist doesn't speak Macedonian (it is already spoken twice). But we already know that he doesn't speak Norwegian or Portuguese, so his two alphabetically consecutive languages must be Ladin and Macedonian. Therefore Neophyte doesn't speak Macedonian and his second language must be Ladin. Now we only need Madcap's second language, which is obviously Occitanian.

**A139:** Tarpot (it is a snake, the others are fish)

**A122:** Italy (not a monarchy)

**A88:** 140:  $(7*7) + (6*6) + (5*5) + (4*4) + (3*3) + (2*2) + (1*1)$

**A174:** 121: the sequence is composed of the squares of consecutive prime numbers (starting with 2).

**A13:** It is full moon. A is a normal, B a sane genius and C an insane genius. A and B cannot both be

## *Answers*

telling the truth, neither can it be that A is telling the truth and B is lying because if B is a normal and it is new moon, he must tell the truth. Is it possible that they are both lying and C is telling the truth? If C is telling the truth, it is full moon and A is a sane genius, but sane geniuses tell the truth at full moon, so we have a contradiction. As it cannot be that C is telling the truth and A is lying, we have only one possibility left: that C and A are both lying and B is telling the truth. If C is lying because it is not full moon, but new moon, B cannot be telling the truth. But if C is lying because A is not a sane genius and it is full moon, B must be the sane genius because he is the only one who is telling the truth. If he is telling the truth, A is a normal. Last but not least, C is an insane genius who lies.

**A271:** It is a French word meaning “last resort, stopgap”. It literally means “(at) the worst going”.

**A20:** The key is in spaceship A, whose sign is true. Sign B is also true, sign C is false. Obviously, the key cannot be in spaceship B, as, according to the Master’s instructions, the sign of the spaceship containing the key is true. The contradiction that would result from this hypothesis is evident. Can the key be in spaceship C? No, for the simple reason that there is only one key, so A and B would both be true. We would have three true signs, and this cannot be. We have only one possibility left:

## Answers

spaceship A. Is the key here? Yes, it is, and we can easily recognize that in this case the Master's conditions are perfectly met.

**A39:** 10 times ( $2^{10}=1,024$ ): the clue "1,024" should have helped you...

**A80:** Imagine the cupboard as an unfolded parallelogram. The shortest route is obviously DG.

**A182:** 61: the sequence is composed of the cubes of consecutive numbers (starting with 1) minus 3.

**A68:**  $811 : (135*7) - 134$

**A106:** Confused. Have you recognized the old problem of drawing a figure with two odd vertices? As you probably know, in order to draw a figure with two odd vertices, you have to start from one of them and finish at the other. The two odd vertices in our figure are E and C. But you will notice that, if you start from C, you cannot complete the figure according to the geniuses' statements, so you must start from E and end with C ( $EF \rightarrow FA \rightarrow AB \rightarrow BF \rightarrow FC \rightarrow CA \rightarrow AD \rightarrow DE \rightarrow EB \rightarrow BD \rightarrow DC$ ). I suggest you take paper and pencil and try to reconstruct the route yourself.

**A143:** Door: all the other words can be prefixed by "steam".

**A256:** It is a mythical animal of composite form. It made its first appearance in the 19<sup>th</sup> century, and comes from Chinese *ch'i-lin*, literally "male-female".

## Answers

**A75:** He explains to him that if he subtracts 27 from 30, he obviously gets what they got back (the 3 dollars), and not what the boy pocketed! In other words, they paid \$27, which is \$2 more than what they should have paid, and this is the amount the boy pocketed (the owner got \$25 and the boy \$2).

**A53:** Exuberant is the poet, Frantic the painter and Gusty the nuclear physicist. If Gusty has never heard of Frantic, we have two possibilities. Either Gusty is the poet and Frantic the painter, or Gusty is the nuclear physicist and Frantic the painter. But we also know that Frantic earns more than Exuberant, and the nuclear physicist more than the painter, from which statements we can easily deduce that Frantic is the painter and Gusty the nuclear physicist.

**A198:** 306: each number is obtained by subtracting the product of the digits of the preceding number from the preceding number itself.

**A151:** C: the words in the figures begin with a letter whose position in the alphabet corresponds to the numbers of sides of the figures containing them (“car” for example begins with the third letter of the alphabet because it is contained in a triangle).

**A49:** She made a profit of \$5.

**A100:** Jack had 39, Jim 21 and Jean 12:  $24 + 24 + 24 = 72$ ;  $12 + 12 + 48 = 72$ ;  $6 + 42 + 24 = 72$ ;  $39 + 21 + 12 = 72$ .

## Answers

**A251:** First used in the 16<sup>th</sup> century, it comes from Spanish *huracán*, from Taino *hurakán*, from *hura*, “wind” and Portuguese *furacão*, of Carib origin. Some of its earliest forms (16<sup>th</sup> century) are due to folk-etymology, and it is possible that the accepted spelling owes something to the early theory that the storm was named from its destruction of sugar plantations (*hurry cane!*).

**A126:** Internet (you can play an active role in the Internet)

**A290:** It is an expression in signalling, telecommunications etc., indicating that a message just received will be complied with. It was first used in the 20<sup>th</sup> century and is an abbreviation for “I will comply”.

**A24:** Donna is 9 and her parents 36.

**A7:** A is an insane genius, B a sane genius and C a normal. Obviously, C’s statement cannot be true (if he is telling the truth, A is not the only one who is telling the truth). So “if C is telling the truth” in A’s statement is false, and A’s statement as a whole is true. As A is not the only one who is telling the truth and C is lying, the other one who is telling the truth is B, who is a sane genius.

**A242:** It means “good digestion” and first appeared in the 18<sup>th</sup> century, from New Latin, from Greek, from *eu-* (from *eus*, “good”), + *pepsis*, “digestion”,

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from *peptein*, “to digest”.

**A111:** The number of rounds they have to go through is obviously 36, one less than the number of players. As for the minimum number of byes, it is a new version of the old problem of the “knockout tournament”. For those who have never heard of this problem: you have to subtract the numbers of players ( $n$ ) from the lowest power of  $2 \geq n$ , then you have to express the remainder in binary notation. In this case for example we have  $64 - 37 = 27$ , 11011 in binary notation. Four 1s mean four byes. So four members had a bye. It’s just as simple as that. Fascinating, isn’t it?

**A289:** It first appeared in the 17<sup>th</sup> century and was described in early slang dictionaries as a cant word. It probably comes from German *wedeln*, “to wag one’s tail”, from Old High German *wedil*, *wadil*, “tail”.

**A209:** 48: add the first four preceding numbers to form the sequence (7 for instance is  $0 + 1 + 2 + 3$ ).

**A57:** 39,916,800 ( $11 \cdot 10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1$ )

**A162:** 387: the others are prime numbers.

## Answers

**A224:**

A	P	O	S	T	R	O	P	H	E			I	
L		D		A			A					R	
L		E		N		A	L	L	U	S	I	O	N
I				K			I					N	
T				A			N			C		Y	
E		E			C	O	D	A		O			
R	E	N	G	A			R		E	N	V	O	I
A		G					O			C		C	
T		L			S	I	M	I	L	E		T	
I	D	Y	L		O		E			I		A	
O		N			N					T		V	
N					G	E	N	R	E			E	

**A249:** It is a word used in physics and means any device for tracing the path of a charged particle, especially a particle found in cosmic rays. It made its first appearance in the 20<sup>th</sup> century and comes from Greek *hodos*, “way”, + *-scope*, from New Latin *-scopium*, from Greek *-skopion*, from *skopein*, “to look at”.

**A190:** 94: the sequence of numbers is composed of consecutive squares (starting with 9) with the digits in reverse order.

**A231:** It is an instrument for measuring the pressure of gases or liquids, consisting of a flattened curved tube attached to a pointer that

## Answers

moves around a dial. As the pressure in the tube increases, the tube tends to straighten and the pointer indicates the applied pressure. It first appeared in the 19<sup>th</sup> century and is named after its inventor, Eugène Bourdon (1808-1884), a French hydraulic engineer.

**A206:** 6,563,711,232: starting with 1, the sequence is obtained by multiplying each number by the number immediately following it, then by multiplying the square of the number thus obtained by the number immediately following it (the number itself, not its square):  $2=1*2$ ;  $12=2^2*3$ ;  $1,872=12^2*13$  etc.

**A278:** It is a mixture of equal amounts of fat and flour, heated, blended, and used as a basis for sauces. First used in the 19<sup>th</sup> century, it comes from French, “brownish”, from Latin *russus*, “russet”.

**A46:** 3.176 km/h: 1: [ $1/3 \div 2 + 2/3 \div 4.5 = 17/54$ ;  $54/17 = 3.176$ ]

**A146:** D: the number of concentric figures corresponds to the number of sides of the figures themselves.

**A65:** He is 64. Let’s call Albert’s sons “x”. Each son has x-1 brothers and x-1 sons of his own, so the total number of grandsons is  $x(x-1)$ . This means that  $x + x(x-1) = x^2 =$  Albert’s age (between 60 and 80). The only possible value is 64.



Answers

**A221:**

C	O	N	E	B	U	S	H				
H				O		A			H		M
O		P		X		L		T	I	T	I
R	O	L	Y	P	O	L	Y		C		N
I		A		O		Y			K	A	T
Z	I	N	N	I	A		R		O		W
E		E		S			Y		R	U	E
M			B	O	O	N	E	R	Y		E
A	S	H		N							D
	U		F		N	A	L	G	O	O	
	N		I		U						
	N	I	G	H	T	S	H	A	D	E	

**A262:** It has two meanings: 1. A portico at the west end of a basilica or church, especially one that is at right angles to the nave; 2. A rectangular entrance hall between the porch and nave of a church. It first appeared in the 17<sup>th</sup> century, via Latin from Medieval Greek: enclosed porch, enclosure, from Greek *narthex*, “stick, casket, giant fennel”, the stems of which were used to make boxes.

**A32:** “Kaleidoscopic”: the letters of PZOVRLHXLKRX have the same relative positions in the alphabet as “kaleidoscopic”, but in reverse order (beginning with z).

**A170:** 18: 5 is the sum of the first two prime

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numbers, 2 and 3; 10 the sum of the first three prime numbers, and so on. So after 10 we should have the sum of the first four prime numbers, 17, and not 18.

**A98:** Two out of three.

**A284:** It means “having all four toes webbed”, referring to certain birds. It first appeared in the 19<sup>th</sup> century and comes from Latin *totus*, “entire”, + *palmate*, from Latin *palmatus*, “shaped like a hand”, from *palma*, “palm”.

**A312:** C: when the first and the second figures are superimposed, green overshadows white, and blue overshadows green (and obviously also white).

**A213:** The number is 8531. 2 cannot be the right digit, as it appears both in *a*) and *d*) in the last position, but only in *a*) one of the digits is in the right position. Neither can 9, as it appears in *a*) and *c*) in different positions. As in *c*) two of the digits are in the right position, we can easily deduce that these two digits must be 8 and 3. So 5 must be the second digit (from *a*). So we only have to find the last digit. It cannot be 2, 3, 4, 5, 8 or 9 (2 and 9 have been the first digits we have eliminated, 3, 5 and 8 already appear in the phone number, and 4 appears in *a*, but is not the right digit, as we already know that the right digit in *a* is 5), so the last digit must be either 1, 6 or 7. Now we see from *d*) that the correct digit in the wrong position must

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be 8 (we know this from c), so 6 and 7 are not right. So the last digit must be 1.

**A85:** Approximately a quarter past ten. The hour hand rate is  $\frac{5}{6}$  of a normal hour hand rate, the minute hand rate  $\frac{3}{2}$ . Consider the positions of the hour and the minute hands in a normal watch at 1:30 pm. If you divide the quadrant in 12 sections, until midnight, a normal hour hand has to go through 11, which multiplied by  $\frac{5}{6}$  gives the sections the hour hand of the genius's watch has to go through, 9.16. The same reasoning applies to the position of the minute hand. The minute hand of a normal watch goes through 21 sections of 30 minutes, so the minute hand of the genius's watch has to go through 31.5. This means that the genius's watch will approximately show 10:15 at midnight.

**A228:** It means blindness, especially if it occurs without observable damage to the eye. It first appeared in the 17<sup>th</sup> century, via New Latin from Greek *amauroo*, "darken", from *amaurous*, "dim".

**A10:** It is new moon. A is an insane genius, B a normal and C a sane genius. If C's statement is true, B's statement "if C's statement is false" is false, so his statement as a whole is true, and this contradicts C's statement. (We don't even have to consider A's statement). So C's statement must be false. In this case we have three possibilities: A is

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lying and B is telling the truth; A is telling the truth and B is lying; they are both telling the truth. Obviously, if C is lying, A's statement is also false. Is B telling the truth? Yes, if it is new moon and A is an insane genius, which is certainly possible, actually, the only possible solution.

**A123:** Vulture (all the vowels of the other words are "u"s)

**A137:** Totara (it is a conifer, the others are palms)

**A305:** D: the figure in the middle becomes the external one, the external one the middle one. Furthermore, the two internal figures move to the centre.

**A128:** Blood (the last four letters of the other words form new words: "link", "lock" and "loom"); "blink" is also right is you consider that the only vowels of the other words are "o"s.

**A184:** 126: the sequence is composed of the sum of the first two pentagon numbers, this sum plus the third pentagon number, etc.

**A237:** It is a trapezoidal zither with metal strings struck by light hammers. In the United States, it means a modern folk instrument related to the guitar and plucked with the fingers. Originally sometimes wrongly used for bagpipe. It was first used in the 15<sup>th</sup> century and comes from Old French *doulcemer*, from Old Italian *dolcimelo*, from

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*dolce*, “sweet”, from Latin *dulcis* + *-melo*, perhaps from Greek *melos*, “song”.

**A254:** This word appeared very early, in the 16<sup>th</sup> century, referring to the woolen sweaters traditionally worn by the fishermen.

**A37:** 7.5 km

**A117:** Didactic receives one book from Ambitious, one from Competent, and two from Eloquent. There are five, and only five, ways of distributing the books: a) 4000; b) 3100; c) 2200; d) 2110; e) 1111.

	A	B	C	D	E
A	-	1	1	1	1
B	4	-	0	0	0
C	0	0	0	1	3
D	0	2	2	-	0
E	0	1	1	2	0

Distribution (a) is B's; (e) must be A's; (b) is C's. Now E has four books, so distribution (c) is D's. The rest follows. It might not appear so obvious at first, but if you try out other combinations (for example if Competent gave the fourth book to Bright instead of Didactic), you'll see that it wouldn't work out for the others.

**A166:** 78: the others are reverses of prime numbers.

**A208:** 713: the sequence is formed by subtracting 3

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to the first two digits of the preceding number, adding 3 to its last digit.

**A28:** The fruit is a peach: She took a giant *pea*, chopped it...

**A60:** 32,760 ( $15 \cdot 14 \cdot 13 \cdot 12$ )

**A147:** C: A and D, B and E are couples.

**A240:** An “*éminence grise*” (“grey eminence”) is a person who wields power and influence unofficially or behind the scenes. It first appeared in the 19<sup>th</sup> century, applied to Père Joseph (François le Clerc du Tremblay, who died in 1638), French monk, secretary of Cardinal Richelieu.

**A295:** It is a weasel-like animal of Southern Africa, *Ictonyx striatus*, resembling a skunk and capable of emitting a fetid odour. First used in the 18<sup>th</sup> century, this word comes from French *zorille*, from Spanish *zorrilla*, diminutive of *zorro*, “fox”. According to Weekley, it can also be related to Basque *zurra*, “crafty”.

**A3:** You shouldn’t have too much trouble with this puzzle, as it is similar to the previous one. The Master of the Universe wanted to encourage Shane to go on (not out of sympathy, but out of malicious pleasure over the difficulties his victim would encounter in the next puzzles). A is a normal, B an insane genius and C a sane genius. If A’s statement is true, B’s statement is also true, but this cannot

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be because normals always lie. So A's statement must be false. B's statement is also false, so he must be an insane genius, and A must be a normal. Is C a sane genius? Yes, he is: he is telling the truth when he asserts that B's statement is false.

**A269:** It was a lightly armed foot soldier in ancient Greece. It was first used in the 17<sup>th</sup> century and comes from Latin *peltasta*, from Greek *peltastes*, "soldier equipped with a *pelta*, a small leather shield".

**A134:** Drill (all the other mechanisms are rotating devices)

**A185:** 17: starting with 14 (the third number in the sequence), every number is the sum of the two preceding numbers divided by 2.

**A42:** In approximately 36 minutes (the minutes it loses in three days) and 18 seconds ( $12 : 1440 = x : 36$  gives the minutes it loses in 36 minutes, that is to say 0.3).

**A169:** 62: every number of this series is  $2 \frac{1}{2}$  times the preceding number, so the number after 25 should be 62.5, and not 62.

**A201:** 27,648: each number of the sequence is obtained by multiplying the preceding number by the cube of successively 1, 2, 3 etc. So 2 (the second number of the sequence) is  $2 \cdot 1^3$ , 16 is  $2 \cdot 2^3$ , 432 is  $16 \cdot 3^3$ , and 27,648 is  $432 \cdot 4^3$ .

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**A259:** Any plant of the tropical American rhizomatous genus *Maranta*, some species of which are grown as pot plants for their showy leaves in variegated shades of green: family *Marantaceae*. It is named after Bartolomea Maranti, a Venetian botanist who died 1571.

**A77:** I am her daughter.

**A101:** Angela keeps a budgie, Beatrice a cat, Connie two cats and a dog, Deborah two dogs and a cat, and Eleanor two snakes.

**A140:** Haiku (a form of poem, the others are sports)

**A232:** It is the bark of any of several tropical trees of the rubiaceous genus *Cinchona*, esp. *C. calisaya*, from which quinine is extracted. It is widely used in medicine. It was first used in the 19<sup>th</sup> century and comes from Spanish, from the name of a Bolivian Indian who taught the uses of quinine to the Spanish. According to the Macquarie Dictionary, it comes from Quecha.

**A55:** Moody: I guess I don't need to explain also the second part in detail... I'll only tell you that the false statement is obviously Moody's statement.

**A310:** B: the little balls (or the other figures in the second example) move by 90° (anticlockwise in the first example, clockwise in the other two) and shift further towards the centre with every movement. When they reach the innermost position, they



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return to the position on the border of the figure.

**A81:** 40 minutes: of the 60 minutes left, he can still enjoy only 20, after repairing the TV, so he worked on the device for 40.

**A15:** If A is true, B must be false, according to the Master's instructions. But we can easily see that if A is true, B must also be true, so this cannot be. So A must be false, in which case B is true, that is to say A conceals a black hole, B a key.

**A285:** Each of a set of wooden, stone, or faience figurines, in the form of mummies, placed in an ancient Egyptian tomb to do any work that the dead person might be called upon to do in the afterlife. They were often 365 in number, one for each day of the year. It comes from Egyptian, meaning "answerer".

**A194:** 11.5: starting with 13, we add 1 (14), multiply by 2 (28), subtract 3 (25) and divide by 4 (6.25), then we start again with 6.25, add 1 (7.25), multiply by 2 (14.5) and subtract 3 (11.5).

**A154:** 12: the other numbers correspond to the positions of the letters of "father" in the alphabet.

**A91:** Type B is four times as efficient as type A. Solve the two equations  $12A + 7B = 4$  and  $10A + 10B = 5$ , and you will easily understand.

**A177:** 111: the sequence is composed of the squares of consecutive even numbers starting with

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2 ( $2^2$ ,  $4^2$ ,  $6^2$ , etc.) added to consecutive prime numbers starting with 2 (2, 3, 5, etc.) So the next number must be  $10^2 + 11$ .

**A5:** A is a sane genius, B a normal and C an insane genius. If A is lying, B is either green or blue, but as greens always tell the truth, he cannot assert that C is green if he is green himself. So he must be blue and A, who is also lying, must be yellow. So C must be green. But this is not the case because what he says would be a lie. So A is telling the truth when he asserts that B is yellow. This also means that C cannot be green (normals always lie), and that it's A who is green. Is C blue? Yes, he is an insane genius who lies.

**A125:** Awe (the other words express negative feelings)

**A87:** The poor rabbit will never eat enough to get rid of them! From the dates we have, we see that, if three rabbits eat up the weeds in three days and two rabbits in six, and if we call  $x$  the quantity of weeds that a rabbit eats in a day, we have  $9x / 3$  days or  $12x / 6$  days. This means that the weeds grow again at a rate of  $3x / 3$  days, or  $x / \text{day}$ , and that there are  $6x$  at the beginning, when the backyard is invaded by weeds. So we can easily see that before the rabbit has finished, the weeds grow again!

**A155:** 131 (not a multiple of 13)

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**A199:** 405: the sequence is obtained by alternately adding and subtracting the sum of the digits of the previous number.

**A291:** Used in ecology, it means “having its origin in a dry habitat”, referring to a sere. It comes from *xero-*, indicating “dryness”, + Greek *arkhe*, “beginning”, from *arkhein*, “to begin”.

**A40:** Violet. We have only two choices, blue and violet. But we know that the violet cow cannot be with the red bull because they talk to each other, but are not partners. So her partner must be the blue bull. This means by elimination that the red cow is with the violet bull.

**A280:** It has two meanings: 1. (*Botany*) Bearing stiff hairs of bristles; 2. (*Zoology*) Marked with fine closely set grooves or ridges. It first appeared in the 18<sup>th</sup> century via New Latin *strigosus*, from *striga*, “bristle, furrow”, “a row of things layed in length” (Cooper), from Latin: “grain cut down”.

**A167:** 225: all numbers are squares, but the others are squares of prime numbers (13, 17, 19, and 23 respectively), 225 is the square of 15.

**A69:** Group A had seven members, group B five.

**A250:** It is New Year’s Eve (and its celebrations). It corresponds in meaning and use to Old French *aguillanneuf* (“last day of the year”, “new-year’s gift”, given and asked for with the cry *aguillanneuf*), of

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which the Norman form *hoguinané* may be the immediate source of the English word. The French word was meaninglessly analyzed as *au-guy-l'an-neuf*, “to the mistletoe the new year”. *Hogmanay* made its first appearance in the 17<sup>th</sup> century, used in Scottish and Northern English.

**A17:** Both signs are true. A conceals a key, B a black hole. If A is false, it must conceal a black hole, according to the Master’s instructions, so B is also false. But we know that B can only be false if there is a key in its spaceship, so our hypothesis doesn’t hold up, as spaceship B must also conceal a black hole if A is false (if A is false, it is not true that at least one spaceship contains a key.) If sign A is true, on the other hand, the spaceship on which it is attached contains a key, so B is also true, which means that it conceals a black hole.

**A99:** She should give her \$12.

**A79:** 518,400 ways:  $6*6*5*5*4*4*3*3*2*2*1*1$  or  $(5*4*3*2*1)^2*6^2$

**A175:** 41: the sequence is composed of every third prime number starting with 2.

**A255:** It has two meanings: 1. Any of a group of polypeptides in the blood that cause dilatation of the blood vessels and make smooth muscles contract; 2. Another name for *cytokinin*. First used in the 20<sup>th</sup> century, it comes from the Greek *kin(ema)*, “motion” + *-in*.

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**A311:** A: the circles are added, the squares subtracted.

**A30:** A zebra: my first letter is the last letter in the alphabet, etc.

**A279:** It has two meanings: 1. A small spiked wheel attached to a spur; 2. *Vet. Science* A piece of leather or other material inserted under the skin of a horse to cause a discharge. It was first used in the 14<sup>th</sup> century and comes from Old French *roel*, “a little wheel”, from *roe*, “wheel”, from Latin *rota*.

**A43:** 20 minutes and 22 seconds: Craig needs 1,218 seconds for the first 696 cm, but after the last 4 cm it “reaches” the top in the proper sense of the word and stays there with its Sweetheart of course. And you can imagine what they do . . .

**A120:** Cat (all the other animals are constellations)

**A244:** It is a white sheep or goat cheese popular in Greece, and comes from Modern Greek, from the phrase *turi pheta*, from *turi*, “cheese”, + *pheta*, from Italian *fetta*, “slice”, from Latin *offitta*, diminutive of *offa*, “mouthful”, “bite”.

**A9:** It is full moon. A is an insane genius, B a normal and C a sane genius. If B is telling the truth, A is also telling the truth anyway, as his if-statement is false, so C must be lying, otherwise our scenario doesn't hold up (we cannot have three persons who are telling the truth). Moreover, sane

## Answers

geniuses lie at full moon, so C cannot be a sane genius who is telling the truth at new moon. But then we wouldn't have a sane genius at all, as both A and B are telling the truth. So B must be lying. In this case, it is full moon, and A's statement is true only if C's statement is true (if C's statement is false, we have three persons who lie, and this is not possible). So C is telling the truth and is a sane genius, A is also telling the truth and is an insane genius, and B is lying and is a normal. And it is full moon.

**A110:** As usual, you should be able to draw the right conclusion from a cell chart.

Clairvoyant is Jolie's husband and IQ1's father, Perspicace Charmante's husband and IQ2's father, and Sagace Belle's husband and IQ3's father. Can Sagace be IQ1's father? If Sagace is IQ1's father, as we know that he isn't married to Jolie, and as we also know that Belle is not IQ1's mother, Charmante must be IQ1's mother, that is to say Sagace's wife. But we know that Belle is not Perspicace's wife, so if Charmante is not his wife either, Jolie must be his wife. But from the fourth condition we know that if Perspicace is Jolie's husband, then Charmante is not IQ1's mother. So we have to discard the possibility that Sagace is IQ1's father. So he must be IQ3's father. Now we know that Sagace is not Jolie's husband, so Jolie is

## Answers

not IQ3's mother. So Sagace's wife must be either Belle or Charmante. If it is Charmante, then Jolie is Perspicace's wife and Belle Clairvoyant's wife. But if Jolie is not IQ3's mother, then IQ1's father must be Clairvoyante, according to the third condition, so Belle would be IQ1's mother, which would contradict the second condition. So Charmante cannot be Sagace's wife. So Sagace's wife must be Belle, and their daughter IQ3. Now, if Perspicace is Jolie's husband, their daughter is either IQ1 or IQ2. If it is IQ1, according to the third condition, Jolie cannot be his wife, as she would be IQ3's mother. If it is IQ2, IQ1 is Clairvoyant's and Charmante's daughter, but we know from the fourth condition that this cannot be. So Perspicace's wife must be Charmante, their daughter IQ2 (third condition), and Clairvoyant must be married to Jolie, whose daughter is IQ1.

**A191:** 1.47: the second number is the first divided by 2, the third is the second divided by 3, and so on.

**A214:** The number is 7281. As 3 appears in the first position in *a*) and *b*), it cannot be right, as we know from the clue that the correct digit in *b*) is not in the right position, and neither can 6 and 9 be right, as they appear in two different positions in *a*) and *d*). So the third digit must be 8 (from *a*). According to *d*), either the second digit is 5 or the

## Answers

fourth 1. But 5 appears in the second position in *b*), so the right digit in *d*) is 1. Now we need the first and the second digits. According to the results so far achieved, these cannot be 1, 3, 5, 6, 8, 9. So they must be either 2, 4 or 7. The possible digits in *b*) are 4 and 7, the possible digits in *c*) are 2 and 4 (we already know that 8 is right). If 4 is right in *b*), 7 is wrong, and 2 in *c*) is also wrong, as the two right digits in the wrong position would be 4 and 8. But we need two digits for our phone number, and these two digits must be different. So the right digit in *b*) must be 7, and the right digit in *c*) 2. According to *c*), 2 cannot be in the first position, so it is in the second position, and the right phone number is 7281.

**A229:** It first appeared in the 18<sup>th</sup> century, from Greek “breeze, breath” via Latin.

**A296:** It is a style of dance music that combines African and Latin American rhythms and uses electronic instruments and modern studio technology. It first appeared in the 20<sup>th</sup> century and comes from West Indian Creole *zouk*, “to have a good time”.

**A48:** Astute has an IQ of 172, Bright an IQ of 160 and Clever an IQ of 140.

**A93:** Anne is 27, Ben 18. Another problem that can be solved by means of simple algebra. A tip to help you get started: if Anne is now  $x$  and Ben  $(45 - x)$



## Answers

years old, “when Anne was as old as Ben is now”, was  $[x - (45 - x)]$ , that is to say  $(2x - 45)$  years ago.

**A36:** EEM (add the squares of 1, 2 and 3 to the respective positions of the letters of “mum” and “dad” in the alphabet)

**A86:** There are 289 stars and 17 groups. From Stargazer’s explanation, we understand that the result cannot be ambiguous (a multiple of 2, 3 etc.) because he says he cannot tell her how many stars there are altogether or she would know how many groups there are, so we have to deal with prime numbers. What we need is a squared prime number between 200 and 300. The only answer is  $17^2=289$ . So there are 17 groups, each of which contains 17 stars.

**A238:** It is the veneration and invocation accorded to saints in the Roman Catholic and Eastern Churches, as contrasted with hyperdulia and latria. It first appeared in the 17<sup>th</sup> century, coming from Medieval Latin for “service”, from Greek *douleia*, “slavery”, from *doulos*, “slave”.

**A274:** It refers to certain dipterous flies and means “producing young that have already reached the pupa stage at the time of hatching”. It was first used in the 19<sup>th</sup> century and comes from Latin *pupiparus*, from *pupa*, “doll, puppet”, and *parere*, “to bring forth”.

**A61:** 0.32% (15/47)

## Answers

**A27:** Roses: Taros, especially....

**A219:** The number is 4831. 2 cannot be right because it appears in the same position in *a*) and *d*); 5 cannot be right because it appears in the same position in *b*) and *d*); neither can 7 be right because it appears in different positions in *a*) and *b*). Now we know from *c*) that two of its digits are correct, and as these cannot be 5 and 2, they must be 1 and 3. So the correct digit in *a*) is 3, and 6 is wrong. From *d*) we know that, if 5 and 6 are wrong, the two right digits must be 8 and 4. So the right digit in *b*) is 4. So we know that the first digit is 4 and the third is 3. We know that the other two are 1 and 8, but we don't know in which order. Now from *d*) we see that 8 cannot appear in the last position, so it must appear in the second, and 1 in the last.

**A306:** D: superimpose two figures to make the third (or you could also consider that parts in common are eliminated).

**A76:** 30,240 ways, that is to say  $[(10 \cdot 9 \cdot 8 \cdot 7 \cdot 6) \div (1 \cdot 2 \cdot 3 \cdot 4 \cdot 5)] \cdot [(10 \cdot 9 \cdot 8 \cdot 7 \cdot 6 \cdot 5 \cdot 4) \div (1 \cdot 2 \cdot 3 \cdot 4 \cdot 5 \cdot 6 \cdot 7)]$

**A103:** Greg and Vanessa are the father and the mother, Herbert and Doris are the children. I suggest you proceed by trial and error, and you will see that, if only two of the statements are true, these two statements must be 1. and 4.

**A176:** 5: on the display of a pocket calculator turned upside down, 36315 reads "siege".

## Answers

**A207:** 12.28: add  $1/3$  of the previous number, multiply by  $1/4$ , subtract  $1/5$ , divide by  $1/6$ , then start again by adding  $1/3$  etc.

**A2:** A is a normal, B an insane genius and C a sane genius. If A's statement is true, B's statement is true too, but this cannot be because normals always lie. So A's statement must be false, and B's statement too. This means that A is a normal and B an insane genius, which is confirmed by C's statement.

**A270:** It is a South African word referring to a cuckoo, *Notococcyx solitarius*, having a red breast. It comes from Afrikaans *piet*, "Peter", + *my*, "my", + *vrou*, "wife". It is an onomatopoeic word based on the bird's three clear notes.

**A299:** D: 7-5; 5-3; 3-1; 1 sides

**A183:** 191: 7 is the cube of 2 minus the square of 1, 23 the cube of 3 minus the square of 2, and so on.

**A283:** It first appeared in the 17<sup>th</sup> century, via French or Spanish from Arabic *tilsam*, from Medieval Greek *telesma*, "ritual": consecration, from *telein*, "to perform a rite, complete", from *telos*, "end, result".

**A33:** "Complainant": the letters of FDZFXBRBBBN have each a double value than the letters of "complainant", if you consider their positions in the

## Answers

alphabet. C, for example, equals 3 in the alphabet because it is the third letter, so we need the sixth letter for our puzzle, that is to say F. The same applies to the other letters, of course. (Please consider that 0 (15), for example, is  $26 + 4$ , that is to say D).

**A241:** It is a grey, green, yellow, or brown pyroxene mineral consisting of magnesium silicate in orthorhombic crystalline form ( $\text{Mg}_2\text{Si}_2\text{O}_6$ ). It first appeared in the 19<sup>th</sup> century and comes from Greek *enstates*, “adversary” (referring to its refractory quality) + *-ite*, a suffix used in scientific terminology after words of Greek/Latin origin indicating fossils and minerals.

**A116:** They meet at 12:51:20. Sarah usually needs 18 minutes for  $1/4$  of the path, while her faithful doggie needs the same time for  $3/4$ . After the accident, the doggie needs 36 minutes for  $1/4$ . On the day of the accident, Sarah leaves the school building at 12:05 and will have gone half way towards home at 12:41, obviously deeply worried about what happened to her doggie. At 12:50, she will have gone another eighth of the total way, while her doggie has gone  $1/4$  of the way (in 36 minutes) plus  $7/18$  of  $1/4$ , that is to say  $7/72$  of the total way (in 14 minutes). Now let's concentrate on the quarter of the path (the last but one towards home) where the two fellows are at 12:50. If we consider

## Answers

this quarter as a unit, the distance between Sarah and her doggie at 12:50 is obviously  $(1/2 - 7/18)$ , that is to say  $1/9$ . As we know that the doggie is twice as slow as Sarah after the accident, we can easily solve our problem by solving  $36 : 1 = x : 1/27$ . The doggie needs 1 minute and 20 seconds after 12:50, so they will meet at 12:51:20.

**A82:** The outback track is 2 km long. When they meet for the first time, both kangaroos together have hopped the whole length of the track once. When they meet for the second time, they have hopped the whole length of the track three times (together). We know that they both hop at a constant speed. This means that not only the total length of the track, but also the individual distances run by each of the kangaroos have tripled, that is to say that the two love-sick kangaroos have hopped from the start to their second meeting point three times the distance from their first meeting point. If we call  $x$  the distance between their first and their second meeting points, we can easily calculate that  $x = 800\text{m}$ . So the total length of the outback track is  $400 + 800 + 800 = 2,000\text{m}$ .

**A263:** In zoology, it refers to the early stages in the life cycle of an organism, especially the pupal stage of an insect. It first appeared in the 19<sup>th</sup> century and comes from Greek *neanikus*, “youthful”.

## Answers

**A64:** David has his birthday on Wednesday, Alan on Thursday, Edward on Friday, Craig on Saturday and Brandon on Sunday. If David is two days older than Edward and the geniuses have their birthdays on consecutive days, someone must have his birthday between David and Edward. This cannot be Brandon, of course, whose birthday is after Edward's. Can it be Craig? If we put Craig's birthday between David's and Edward's, Alan would be the oldest and Brandon the youngest, but then the first condition wouldn't be true any more because Alan's birthday would be two days before Craig's and Brandon's only one day after Edward's. Let's put Alan's birthday between David's and Edward's. All initial conditions are met: David is the oldest, followed by Alan, Edward, Craig (whose birthday is two days after Alan's), and finally Brandon (whose birthday is two days after Edward's). Knowing that Craig's birthday is on Saturday, we can easily determine all geniuses' birthdays.

**A161:** 28,726: the other numbers are 24 to the power of 2, 3 and 4.

**A230:** It is a South African word meaning "domination", especially of non-whites by whites. It comes from Afrikaans, from *baas*, "master", + *-skap*, "condition".

**A25:** No. Try to represent the problem with sets...

## Answers

**A200:** 1,024: 1 is  $1^2$ , the rest of the sequence is obtained by increasing by 1 both the numbers and their powers (8 is  $2^3$ , 81  $3^4$ , and 1,024  $4^5$ ).

**A51:** 2  $\frac{1}{2}$  months:  $250 : 400 = x : 4$

**A168:** 7.291: the others are square roots (of 7, 19, and 31 respectively).

**A14:** It is full moon. A is a sane genius, B a normal and C an insane genius. If B is telling the truth, A is also telling the truth anyway, as his "if"-statement is false. But C would also be telling the truth, and we cannot have three persons who are telling the truth. So B must be lying. In this case C is obviously also lying. In order to hold up our scenario, A must be telling the truth, which is the case only if B is a normal. So it is full moon, A is a sane genius, B a normal and C an insane genius.

**A92:** 4 minutes and 7 seconds:  $1/10 + 1/7 = 17/70$ ;  $70/17 = 4.118$

**A192:** 1: the second number is the first number divided by the sum of its digits ( $378 \div 18 = 21$ ). The same rules apply to the following numbers, so that 7 is  $21 \div 3 = 7$ , and the number we are looking for is  $7 \div 7 = 1$ .

**A215:** The number is 9138. 5 and 2 cannot be right (5 appears in the same position in *b* and *c*, but we know from the clues we have that no digit is in the right position in *c*), 2 appears in the same position

## Answers

in *a*) and *d*) (and no digit is in the right position in *a*). So the right digits in *d*) must be 3 and 8. So 7 in *b*) is wrong. As 6 appears in the first position in *a*), it cannot be the right digit in the right position in *b*), so the right digit in *b*) is 1. So we only need the first digit. According to the results so far achieved, this cannot be 1, 2, 3, 5, 6, 7 or 8. So it must be either 4 or 9. Now we know from *c*) that two of its digits are correct, but not in the right position, so the digit we are looking for is 9 (the other one is 1), and the phone number is 9138.

### A220:

P	H	A	L	A	R	O	P	E			D		
T		C					I		R	A	I	L	
A	C	C	I	P	I	T	E	R			V		A
R		E				E		O			E	M	U
M		N	U	T	C	R	A	C	K	E	R		K
I		T				C		K					L
G		O	W	L		E		J					E
A		R				L	O	U	R	I	E		T
N								M				D	
	T		D	I	D	A	P	P	E	R		O	
H	U	I	A					E				D	
	I		W	R	E	N		R	A	P	T	O	R

**A246:** It is a banner suspended from a crossbar, historically used by certain medieval Italian republics or in church processions. It first appeared



## Answers

in the 16<sup>th</sup> century and comes from Old Italian *gonfalone*, from Old French *gonfalon*, of Germanic origin; compare Old English *guthfana*, “war banner”, Old Norse *gunnfani*. In about 1300, it appeared as *gonfanon*, meaning “knight’s pennon” (the change from -n- to -l- is due to dissimilation).

**A72:** From the North Pole!

**A275:** It is a system of breathing and exercise designed to benefit both physical and mental health. It first appeared in the 20<sup>th</sup> century and comes from Chinese *qi*, “energy”, + *gong*, “exercise”.

**A294:** It is a large civet, *Viverra zibetha*, of South and South-East Asia, with a tawny fur marked with black spots and stripes. The word first appeared in the 16<sup>th</sup> century and comes from Medieval Latin *zibethum*, from Arabic *zabad*, civet, whence also Italian *zibetto*.

**A302:** B: the one-pointed arrow moves clockwise by 90°, the line with the two little balls moves anticlockwise by 45° (the innermost ball shifts alternately to the centre of the line and to the centre of the circle), the line with the little square moves clockwise by 90°, and the two-pointed arrow moves anticlockwise by 45°.

**A195:** 19.2: multiply each number by 7/5.

**A286:** It is the Irish and/or Scottish name for “whisky”. It also refers to an Irish liqueur flavoured

## Answers

with coriander. It first appeared in the 16<sup>th</sup> century and comes from Irish Gaelic *uisce beathadh* or Scottish Gaelic *uisge beatha*, “water of life”.

**A145:** D: the letters in the other figures are composed of the same number of strokes as the sides of the figures that contain them.

**A21:** Behind the door of spaceship A is a key, behind the door of spaceship B a black hole, and spaceship C is empty. If B is true, its spaceship can either conceal a key or be empty, and spaceship A conceals a black hole. Now we know that if A conceals a black hole, its sign is false, so C cannot be empty. This obviously means that B cannot contain a key, otherwise we don't have an empty spaceship, which would contradict the Master's instructions. Can B be true and empty? Let's see. We already know that if B is true, A must be false and conceal a black hole. This implies that C is not empty, and false (because its sign reads “this spaceship is empty”), so it also conceals a black hole. Again, the Master's conditions are not met (we would have an empty spaceship and two black holes). So B cannot be true. So it must be false. If it is false, we have again two possibilities: it may conceal a black hole or it may be empty. Let's see what happens if it is empty. Sign A doesn't conceal a black hole, so it must conceal a key (we already have an empty spaceship). If it conceals a key, its

## Answers

sign must be true, and spaceship C would also be empty (and its sign true). So we have to discard this possibility. But if B is false and conceals a black hole, then all conditions are met (A is true and conceals a key, and C is true and empty), so this is the combination we were looking for. (Obviously, A and C cannot be both false if B is false.) Too complicated? There is also a “quick solution”. The key cannot be in spaceship C because we know that the sign on the door of the spaceship containing the key is true. Can the key be in spaceship B? In this case, the sign on its door would obviously be true, so the black hole would be behind the door of spaceship A, and spaceship C would be empty. This would imply that the sign on the spaceship concealing a black hole would be true – impossible, according to the Master’s instructions. So the key must be in spaceship A, the black hole behind spaceship B, and spaceship C is empty.

**A45:** Never: Rinaldo needs 2 hours to reach the point where the snail started, but the snail in the meantime has moved forward (at a speed of 7.33 m/h, that is to say 14.66 metres in 2 hours), so Rinaldo in his turn needs another 4.8 sec for these 14.66 metres, but in the meantime the snail has moved forward, and so on *ad infinitum*.

**A12:** It is full moon. A is a sane genius, B a normal and C an insane genius. If B’s statement is true, C’s

## Answers

is obviously also true, and A's too, as "C is telling the truth" is true. So we have to give up this scenario, as we cannot have three persons who are telling the truth. So B is lying, and it is full moon. C is also lying. A, on the other hand, is telling the truth if B is a normal. In this case, obviously, A would be a sane genius who tells the truth at full moon, and C an insane genius who lies.

**A142:** Statistician: the number of letters of the words in the series corresponds to the Fibonacci series, so the sixth word should be composed of 13, and not 12 letters.

**A115:** Louise Cole is 4, Larry White is 5, Rita Brown is 6, Tania White 7 and Sebastian Gates is 8. Please draw your usual cell chart, repeating the set indicating the ages of the children to the right and below the chart with the names and surnames.

	W	W	C	G	B	4	5	6	7	8
Tania	O	X	X	X	X	X	X	X	O	X
Larry	X	O	X	X	X	X	O	X	X	X
Louise	X	X	O	X	X	O	X	X	X	X
Rita	X	X	X	X	O	X	X	O	X	X
Sebastian	X	X	X	O	X	X	X	X	X	O
4	X	X	O	X	X					
5	X	O	X	X	X					
6	X	X	X	X	O					
7	O	X	X	X	X					
8	X	X	X	O	X					

## *Answers*

In this puzzle it is very important to “eliminate”. So let’s get started. According to the first clue, the Cole girl is younger than 7. The White children are not 4. Tania’s surname cannot be Gates, according to the second clue. She is not 4 and not 8. Larry is not 8 and the Gates child is not 4. Further facts you can easily detect are: the Brown girl is older than 5 and Louise is younger than 7 (third clue); Rita’s and Sebastian’s surnames cannot be White or Cole (first and last clues). Please put a red cross in your table to eliminate these possibilities (the red colour indicates that these are basic facts stated in the clues). Please also consider elementary facts I have not mentioned, for instance that if Mrs. Cole has a daughter, obviously Larry’s and Sebastian’s surname cannot be Cole. Now continue in black. The first fact we know for sure from the table, according to our statements, is that Sebastian’s surname is Gates. As the other little geniuses obviously cannot be called Gates, we can detect a second fact: Rita’s surname is Brown. The next fact we can detect is that the Cole girl is 4. As Tania cannot be 4, it must be Louise who is 4. She is Louise Cole. Now we can easily recognize that the two White children are Tania and Larry. Tania is older than 5 (she is older than Larry, and Larry is

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older than 4). Rita Brown is 6 (third clue). So Sebastian is 8, Tania 7 and Larry 5. (Just complete your table in order to find out these facts). We now have all full names and ages of the little geniuses.

**A160:** 157: all the other numbers are multiples of 17.

**A95:** Sarah gives her little brother only two cookies: either the two that weigh 35 and 10 grams, or the two that weigh 20 and 25, or the two that weigh 15 and 30. Their average weight is 22.5 grams, just as the average weight of her four cookies.

**A298:** C: each figure contains a figure with a number of sides equal to the number of sides of the figure containing it diminished by 1.

**A149:** E: A and D, and B and C are pairs.

**A105:** Absent-Minded creates the pink dog, Bizarre the yellow dog, Crazy the ultramarine dog, Distracted the pea-green dog and Extravagant the violet dog.

Let's summarize. We had:

- 1)  $C_U$  or  $C_Y$  or  $E_{pg}$
- 2)  $B_V$  or  $A_V$  or  $D_{pg}$
- 3)  $A_U$  or  $C_{pg}$  or  $D_{pg}$
- 4)  $B_Y$  or  $C_V$  or  $A_{pg}$
- 5)  $A_p$  or  $B_V$  or  $D_U$ ,

## Answers

where A is Absent-Minded, B Bizarre, C Crazy, D Distracted, E Extravagant, p pink, pg pea-green, u ultramarine, v violet and y yellow. We know from 3) that if not  $D_{pg}$ , then  $C_{pg}$  or  $A_u$ . But not  $C_{pg}$  (from  $1 \rightarrow$  we would have a contradiction: if  $C_{pg}$ , so not  $E_{pg}$ , so  $C_u$  or  $C_y$ ), and not  $A_u$  (from 2 and  $4 \rightarrow$  if  $A_u$  and not  $D_{pg}$ , so  $B_v$ ; so not  $C_v$  and not  $B_y$ , so  $A_{pg} \rightarrow$  again a contradiction); therefore  $D_{pg}$ . So not  $E_{pg}$ , and so  $C_u$  or  $C_y$  (from 1). So not  $C_v$  or  $A_{pg}$ ; and so  $B_y$  (from 4). Therefore  $A_p$  (from 5) and  $C_u$  (from 1); and therefore  $E_v$ , by elimination.

**A130:** Mug (the other words can be derived from each other by changing a letter *and* anagramming)

**A197:** 174: each number is formed by adding 2 to the first digit of the preceding number, and subtracting 1 from its second digit, for example  $9+2=11$ ,  $8-1=7$ , so the second number is 117, and so on according to the same rule.

**A236:** It was first used in the 19<sup>th</sup> century (according to Weekley it was coined by Owen in 1841) and comes from New Latin *dinosaurus*, from Greek *deinos*, “fearful”, + *saurus*, “lizard”.

**A74:** Ten. The key question for solving this problem is: How much water has been added to the potion each day?  $1+2+3+4 = 10$ . Obviously, no water was added on the last day (pure water doesn't increase your IQ!).

## Answers

**A31:** The father is 42, the mother 28, Jennifer 9 and her sister 18.

**A181:** 66: the sequence is composed of the squares of consecutive even numbers starting with 2 plus 2.

**A277:** A poem consisting of 13 or 10 lines with two rhymes and having the opening words of the first line used as an unrhymed refrain. It was first used in the 16<sup>th</sup> century and comes from Old French, from *rondel*, “a little round”, from *rond*, “round”.

**A73:** This is a tricky one. The possibilities are 2 out of 3: the first cassette has  $M_1/M_2$ , the second  $M_1/P_2$ , and the third  $P_1/P_2$  (where M is obviously mathematics and P poetry). So if the little genius goes out and puts a cassette in his Walkman, and there is mathematics on that side, that side can be  $M_1$  or  $M_2$  of the cassette that has mathematics on both sides, or  $M_1$  of the cassette that has mathematics on one side and poetry on the other. So there can be either poetry on the other side (if the cassette is  $M_1/P_2$  and he is listening to  $M_1$ ),  $M_1$  (if the cassette is  $M_1/M_2$  and the side the little genius is listening to is  $M_2$ ), or  $M_2$  (if he is listening to  $M_1$ ). So the possibilities are two out of three.

**A173:** 50: the numbers are the squares of consecutive even numbers – starting with 2 – divided by 2 (4/2, 16/2, etc.).

**A189:** 1: 19 is the sum of the digits of 973, 10 the



*Answers*

sum of the digits of 19, 1 the sum of the digits of 10.

**A22:** She will be 18 and her sister will be 6. You don't even need algebra for this one, do you?

**A222:**

S	C	H	O	P	E	N	H	A	U	E	R		
H		E		L				R				L	
A		G		A		M	U	I	R			I	
K		E	T	T	Y			S				S	
E		L		O				T				Z	
S							M	O	Z	A	R	T	
P	O	P	E					T					
E		O		M			E	L	I	O	T		
A		E	L	I	A	S		E		W			
R				R						E			
E	D	I	S	O	N			K	A	N	T		

**A313:** B: circle wins over triangle, square over circle and triangle.

**A156:** 28 (the others are prime numbers with reverse digits)

**A248:** A widely distributed slaty-grey dolphin, *Grampus griseus*, with a blunt snout; it is also another name for “killer whale”. It first appeared in the 16<sup>th</sup> century, at the beginning as *graundepose*, *grapeys*, from Old French *graspois*, from *gras*, “fat” (from Latin *crassus*) + *pois*, “fish” (from Latin *piscis*).

## Answers

**A288:** A very old word that first appeared in the 13<sup>th</sup> century, from Old French *vil*, from Latin *vilis*, “cheap”. In French, it can still refer to price.

**A258:** In chemistry, it indicates an atom, molecule, radical, or ion forming a complex with a central atom. In biochemistry, it indicates a molecule that binds to another (usually larger) molecule. It was first used in the 20<sup>th</sup> century and comes from Latin *ligandum*, gerundive of *ligare*, “to bind”.

**A4:** A is a sane genius, B a normal and C an insane genius. B’s statement is true only if both A’s and C’s statements are false, which makes them a normal and an insane genius (obviously an insane genius who lies), and B a sane genius. But if A is not a sane genius, his statement cannot be false, because we know that whenever an “if” statement is false, the “if-then” statement is true. This means that B’s statement is false. Who is telling the truth? A or C? Maybe both? If C’s statement is true, A’s statement is obviously also true because greens always tell the truth. If C is lying, on the other hand, and A is not a sane genius, we wouldn’t have a sane genius at all. So we have only one possible combination: A is the sane genius, B the normal and C the insane genius.

**A265:** It is a disease in adults characterized by softening of the bones, resulting from a deficiency of vitamin D and of calcium and phosphorus. It was

## Answers

first used in the 19<sup>th</sup> century and comes from New Latin *osteo-*, “bones”, and Greek *malakia*, “softness”.

**A58:** Four jars and three lids. The problem sounds confusing, but it can easily be solved either by algebra or by simple reasoning.

**A38:** 13 times

**A243:** This now common exclamation was first uttered by Archimedes when he discovered in his bath the means of determining by specific gravity the proportion of base metal in Hiero’s golden crown. In Greek, *heureka* means “I have found (it)”, from *heuriskein*, “to find”. *Eureka* was first used as an exclamation in the 17<sup>th</sup> century.

**A83:** 4.375km/h.  $25 : 105 = x : (x + 14)$ , so  $x = 4.375$

**A304:** B: the smaller figure is shifted towards the centre of the larger one (the one containing it), the point contained in it is shifted even further towards the centre.

**A133:** Lattice (all the others are fabrics)

**A205:** 5,733: the sequence is formed by reversing the digits of the cubes of consecutive numbers, starting with 12. So, if  $12^3$  is 1,728, the number in our sequence is 8,271; if  $13^3$  is 2,197, the number in our sequence is 7,912, etc.

**A94:** 58 (29%): the ones who have a Doctorate

## Answers

obviously also have a Master's degree.

**A26:** It exploded! It doesn't exist any more.

**A114:** 4 hours and 5 minutes. If  $x$  is the time we are looking for, you have to solve the following equation:  $\frac{1}{7}x + \frac{1}{5}(x-1) + \frac{1}{3}(x-2) + \frac{1}{1}(x-3) = 1$  (the whole project).

**A276:** It is an adjective used to denote the standard keyboard on English-language typewriters, word processors, etc., with  $q$ ,  $w$ ,  $e$ ,  $r$ ,  $t$ , and  $y$  as the first keys on the top row of letters.

**A180:** 23: the sequence is composed of every second prime number starting with 2.

**A104:** The three ladies are Alice Beazley, Beatrice Clark and Claudia Howard. In order to solve this problem, you have to proceed by trial and error (and some basic algebra), considering "real money", that is to say that the smallest coins are cents (this means for example that you cannot divide 27.25 by 2). You'll come to the result that Mrs. Howard spent \$5.45, Mrs. Clark 16.35 and Mrs. Beazley 32.7.

**A66:** Yes, they will both arrive in time, although Claudia will arrive only five minutes before the meeting. Claudia will leave at 10:40, thinking it's 10:30, so she will arrive at 10:55. David will leave at 10:23, also believing it's 10:30, of course, and he will arrive at 10:38.

**A235:** It is an ancient device for measuring time by

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the flow of water or mercury through a small aperture. It was first used in the 17<sup>th</sup> century and comes from Latin, from Greek *klepsudra*, from *kleptein*, “to steal”, + *hudor*, “water” (because of the constant flow of water).

**A268:** It is a large square shield, developed in the 15<sup>th</sup> century, at first portable but later heavy and set up in a permanent position. The word first appeared in the 14<sup>th</sup> century and comes from Old French *pavais*, from Italian *pavese*, of Pavia, the Italian city where these shields were originally made. Its use was revived by Southey and Scott after long desuetude.

**A18:** If sign A is on the left side and there is a key behind it, it is obviously false, and this would contradict the Master’s instructions. If there is a black hole behind it, on the other hand, it would be true, and the Master’s instructions would again be violated. So sign A must be on the right side, in which case sign B is obviously on the left side. So the left-hand spaceship cannot contain a key, otherwise its sign would be true. The contradiction resulting from this hypothesis is evident. So the first (left-hand) spaceship conceals a black hole, and its sign is false, which means that the second spaceship contains a key (and its sign is also false).

**A165:** 62,314: the others are fourth powers (of 11, 14, and 15 respectively).

*Answers*

**A297:** C: the number of angles increases by 1 in each figure of this series.

**A188:** 59: We have two sequences here, one composed of 3, 6, 11, etc., and the other composed of 2, 5, 15 etc. The first sequence is obtained by adding consecutive prime numbers starting with 2 to 1, and then to every number of the sequence thus obtained (3 is 1+2, 6 3+3, 11 6+5, etc.), the second sequence starts with 2 and is formed by adding 3, multiplying by 3, subtracting 3 and dividing by 3, then again by adding 3, multiplying by 3, and so on. The number we are looking for happens to be in the first sequence and is  $42+17 = 59$ .

**A227:**

N	O	N	D	E	S	C	R	I	P	T	I	V	I	S	M
I		A					D		A					Y	
E	N	T	R	O	P	Y		E	N	T	H	E	I	S	M
T		O		N			N		H		M		T		
Z	A	R	A	T	H	U	S	T	R	A		E		E	
S		P		O		G		I		T		R		M	O
C				L				S	T	R	A	U	S	S	

## Answers

H	A	R	M	O	N	Y		Y				O			F
E		E		G			T			M	A	N	S	E	L
		A		Y	A	M	A	G	A		I				A
B	E	L	L		C		I			A	R	O	N		X

**A44:**  $AC = 4$  m: it can be proven (on the basis of similarity) that in any 4-5-6 triangle, the angle opposite the 6-side is twice the angle opposite the 4-side.

**A150:** C: Every figure contains a number of figures equal to its number of sides minus 1, and the number of sides of these figures starts with the number of sides of the figure containing them minus 1, and diminishes by 1 in each of the remaining figures.

**A109:** Eerie is 36, his brother 24. We know that Eerie's age is divisible by 3, and that it must be an even number (from the last clue), so the only possible answer is 36, and his brother's age is 24.

**A309:** C: the parts in common in the first two figures disappear in the third.

**A257:** It first appeared in the 18<sup>th</sup> century and comes from New Latin, adapted from Latin *lemures*, "ghosts", probably cognate with *lamia*, "goblin", so named by Linnaeus for its ghostlike face and nocturnal habits.

**A264:** It made its first appearance in the 16<sup>th</sup>

## Answers

century, from French *origine*, from Latin *origo*, “beginning, birth”, from *oriri*, “to rise, spring from”. According to Weekely, *original* first appeared in the 13<sup>th</sup> century in “original sin”.

**A84:** 3 kilometres:  $1 + 2 (1/2 + 1/4 + 1/8 \text{ etc.}) = 1 + 2*1 = 3$

**A141:** Strophantus: it is a shrub, while all the others are medicinal plants.

**A157:** 15 (the others are consecutive prime numbers – starting with 2 - multiplied by 2)

**A8:** It is full moon. A is a normal, B a sane genius and C an insane genius. Can A’s statement be true? No. In fact, if A’s statement is true, we have three possibilities: A is telling the truth, B is lying and C is telling the truth; A and B are telling the truth and C is lying; A is the only one who is telling the truth. But C cannot be telling the truth, otherwise B’s statement would be true anyway (if “if C’s statement is false” is false, B’s statement as a whole is true), and we would have three creatures who are telling the truth, which cannot be. Moreover, we would have a contradiction (if C is telling the truth, B is lying). If C is lying, on the other hand, B cannot lie, of course. But then his statement is true only if A’s statement is false. We have a contradiction. So A’s statement cannot be true. Can it be false? Let’s consider again all possibilities. Obviously, B and C cannot both be telling the truth (we would have a



## Answers

contradiction, as we have already seen). So we have only two possibilities left: B is lying and C is telling the truth, and B is telling the truth and C is lying. We have already seen that if C is telling the truth, B's statement "if C's statement is false" is false, so his statement as a whole is true, and this would be contradictory. So this cannot be. But if C is lying, B's statement is true if both parts of his statement are true. So our assumption that A is lying is confirmed. If A is lying, the "if"-statement in his statement must be true, and the "then"-statement false. So it is full moon, A is a normal (normals lie at full moon), B a sane genius (sane geniuses tell the truth at full moon), and C an insane genius.

**A59:** F completes the first square, G the second. The squares are magic squares in which the numbers have been substituted with the corresponding letters of the alphabet. The well-known 5 at the centre of the small square, for example, is E (the fifth letter of the alphabet) and so on. For those who don't know what a magic square is: a magic square is a square array of rows of integers arranged so that the sum of the integers is the same when taken vertically, horizontally, or diagonally (*Collins English Dictionary* 1998). In the first square, the sum is 34, in the second one 15.

**A129:** Limerick (the other three words are word games)

## Answers

**A196:** 333: Each number is obtained by subtracting the sum of the digits of the previous number.

**A247:** It first appeared in the 16<sup>th</sup> century and is a contraction of *God be with ye*, with later substitution of *good* for *God*, after *good day* (13<sup>th</sup> century), *good night* (14<sup>th</sup> century).

**A303:** B: the squares move alternately two spaces anticlockwise and one clockwise; the circles move two spaces clockwise and one anticlockwise.

**A52:** He'd better catch a bus or give up his goal. He should run back at a speed of 36 km/h! If X is the speed we are looking for,  $(1/2 \div 4.5) + (1/2 \div X) = 1/8$ , so  $X = 36$ .

**A223:**

M	A	R	P	E	S	S	A			P	E	R	O
E			H				C			A			
L	Y	C	A	O	N		A	D	O	N	I	S	
A			S				S		S				
M	E	L	I	C	E	R	T	E	S			O	
P			S		C		U		A	G	A	V	E

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U		P			H		S					I	
S	E	L	E	N	E		E		L	E	D	A	
		U			M		I	N	O				B
	A	T	R	E	U	S		N					A
		O			S			A	C	A	M	A	S

**A287:** It is a variety entertainment or a light or comic theatrical piece interspersed with songs and dances. It first appeared in the 18<sup>th</sup> century, from French, from *vaudeville*, “satirical short song”, such as those ascribed to Olivier Basselin (15<sup>th</sup> century), inhabitant of the valley of Vire (Calvados, Normandy), shortened from *chanson du vau de Vire*, “song of the valley of Vire”, a district in Normandy where this type of song flourished.

**A216:** The number is 1325. 6 and 7 cannot be right because they appear in different positions in *a*) and *d*), so the right digits in *d*) are 1 and 2. So the right digit in *a*) must be 3. Now we only need the last digit. This cannot be 1, 2, 3, 4, 6 or 7, according to our results so far. So it can only be 5, 8 or 9. 9 cannot be in the last position because it appears in the last position in *b*), so either 5 or 8 are right in *b*). As we already know that 2 is right, the second correct digit in the wrong position in *c*) must be 5, and this is obviously the digit we were looking for.

**A121:** Nettle (not edible)

## Answers

**A67:** 104:  $628 \div 7 = 89 (+5)$ ;  $94 \div 7 = 13 (+3)$ ;  $16 \div 7 = 2 (+2)$ , but these cannot be recycled any more. So  $89 + 13 + 2 = 104$ .

**A54:** I will explain this puzzle in detail, although it is not difficult. The answer to the first part of this puzzle is Oversensitive. If Moody's statement is true, Oversensitive's is true too, so Nostalgic cannot be the culprit. The same applies to Petulant's statement (Oversensitive's statement would be true too), so Moody cannot be the culprit either. On the other hand, Oversensitive's statement cannot be the only true one either, as Moody's and Nostalgic's statements contradict each other (so one must be true and one false). Can Nostalgic's statement be the only one which is true? It certainly can. In this case we know that Nostalgic didn't do it, that Moody is lying when he says Nostalgic did it, that Oversensitive DID it and Moody didn't do it. So obviously the culprit is Oversensitive.

**A148:** C: the other figures are intersections.

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