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Creativity

If we were to remove a brain from the skull we would see that it is made up of two almost identical hemispheres. These two hemispheres are connected by a bridge, or interface, of millions of nerve fibres called the corpus callosum which allows them to communicate with each other. Thus, the human brain consists of three main parts, the left hemisphere, the right hemisphere and the all-important interface between these two hemispheres.

In order to work to its full potential, each of these hemispheres must be capable of analysing its own input first, only exchanging information with the other half, by means of the interface, when a considerable amount of processing has taken place.

Because both hemispheres are capable of working independently, human beings are able to process two streams of information at once. The brain then compares and integrates the information to obtain a broader and more in-depth understanding of the concept under examination.

In the early 1960s the American psychologist Roger Sperry showed by a series of experiments, first using animals whose corpus callosum had been severed, and then on human patients whose corpus callosum had been severed in an attempt to cure epilepsy, that each of the two hemispheres has developed specialized functions and has its own private

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sensations, perceptions, ideas and thoughts, all separate from the opposite hemisphere. As their experiments continued, Sperry, who won the 1981 Nobel Prize for medicine for his work in this area, and his team were able to reveal much more about how the two hemispheres were specialized to perform different tasks.

For most people the left side of the brain is analytical and functions in a sequential and logical fashion and is the side which controls language, academic studies and rationality. On the other hand, the right side is *creative* and intuitive and leads, for example, to the birth of ideas for works of art and music.

This is where the interface between the two halves of the brain becomes so important. In order for the subconscious of the right-hand hemisphere to function, it needs the fuel, in other words data, which has been fed into, collated and processed by the left-hand hemisphere.

The real danger is the overburdening of the left-hand hemisphere with too much data, and too quickly, to the extent that the creative side of the brain is unable to function to its full potential. On the other hand, lack of data fed into the left-hand hemisphere could result in the creative side, or right-hand hemisphere, drying up. It is, therefore, desirable to strike the right balance between right and left hemispheres in order for the brain to work to its full potential. The term *creativity* refers to mental processes that lead to solutions, ideas, concepts, artistic expression, theories or products that are unique and novel. Because it is such a diverse subject in which there are so many different ways in which creativity manifests itself, and because in so many people it is to a great extent unexplored, creativity is very difficult, if not impossible, to measure.

The French mathematicians Poincaré and Hadamard defined the following four stages of creativity:

- 1 Preparation – the attempt to solve a problem by normal means.
- 2 Incubation – when you feel frustrated that the above methods have not worked and as a result you then move on to other things.
- 3 Illumination – the answer suddenly comes to you in a flash via your subconscious.
- 4 Verification – your reasoning powers take over as you analyse the answer which has come to you, and you assess its feasibility.

The right-hand hemisphere of the human brain, which controls the creative functions, is the side of the brain which is under-used by the majority of people. Because it is under-used, much creative talent in many people remains untapped throughout their life. Until we try, most of us never know what we can achieve, for example, one in three people in Britain have the desire to write a novel, yet only a very small percentage of these people progress any further than the initial stage of just thinking about it.

We all have a creative side to our brain, therefore we all have the potential to be creative. However, because of the pressures of modern living and the need for specialization, many of us never have the time or opportunity, or indeed are given the encouragement, to explore our latent talents, even though most of us have sufficient ammunition to realize this potential in the form of data which has been fed into, collated and processed by the brain over many years.

Writers, indeed all artists, must, therefore, use both halves of the brain. They must use the right side of the brain to create things, and the left side of the brain to organize things. The creative and intuitive right side is able to cope

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with complexity and this is where insights originate, whilst the left side controls language, academic studies and rational intellectual work. The problem is, especially as in so many people the left half of the brain is possessively dominant, getting these two halves of the brain to pass information back and forth and work together.

In order to perform any creative task it is necessary to encourage your right side to start its creative juices flowing, in other words, move your mental processes, albeit temporarily, from the dominant left side across to the creative right side. This may sound an easy enough task in theory, but not so easy to put into practice.

Like many other tasks, or pleasures, the majority of us never know what we can achieve until we try. Having then tried, we instinctively know whether we find it enjoyable or whether we have a talent or flair for it. Then, if these signs are positive, we persevere. By cultivating new leisure activities and pursuing new pastimes it is possible for each of us to exploit the potential and often vastly under-used parts of the human brain.

The following exercises, while different in themselves, are all designed with the object of improving or recognizing your own powers of mental productivity, generation of ideas and artistic skills.

Tests of creativity

Progressive matrices test (Answers, see pp. 167–8)

The ten questions here are designed to test and exercise your appreciation of pattern and design, your ability to think laterally and to explore with an open mind the various possibilities that might lead to a correct solution.

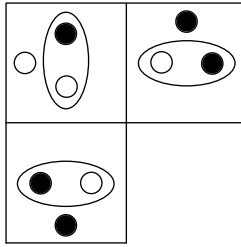
In tests of intelligence, a matrix is an array of squares in which one of the squares has been omitted, and where you must choose the correct missing square from a number of options. It is, therefore, necessary to study the matrix to decide what pattern is occurring, either by looking across each line and down each column, looking at the array as a whole or looking at the relationship between different squares within the array.

The test that follows consists of ten questions which gradually increase in difficulty as the test progresses, first starting with 2×2 arrays, then 3×3 arrays and finally 4×4 arrays. The tests call for a great deal of creative right-brain thinking and you must apply your mind to each set of diagrams in order to appreciate the patterns and sequences that are occurring.

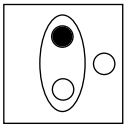
You have 45 minutes in which to solve the ten questions.

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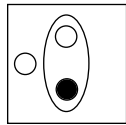
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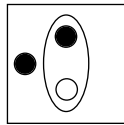
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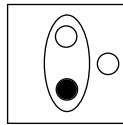
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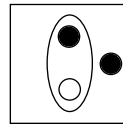
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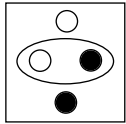
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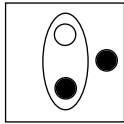
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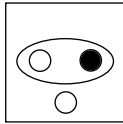
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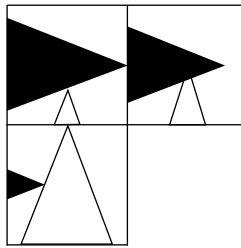


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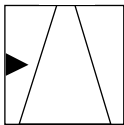


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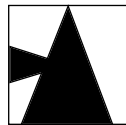
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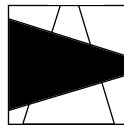
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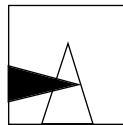
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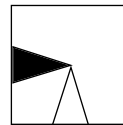
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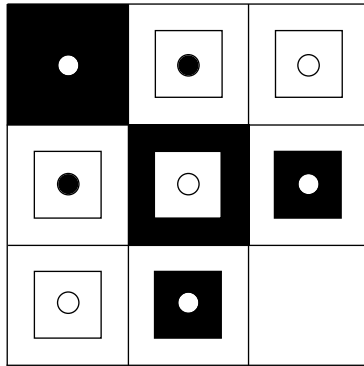


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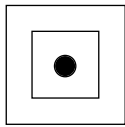


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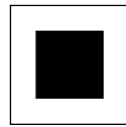
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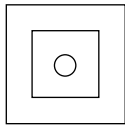
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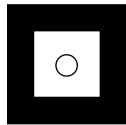
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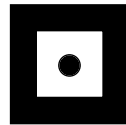
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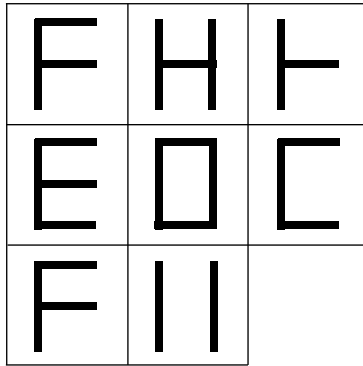
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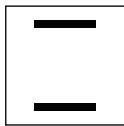
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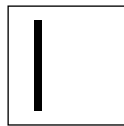
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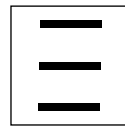
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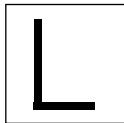
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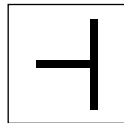
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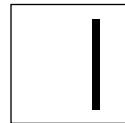
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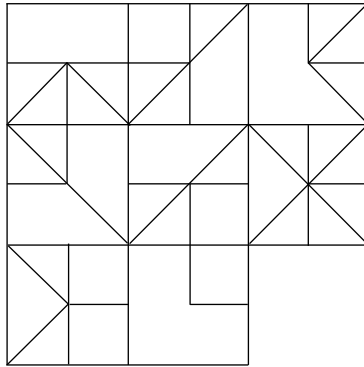


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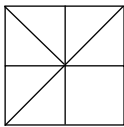


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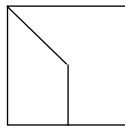
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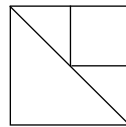
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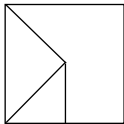
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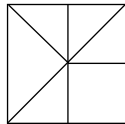
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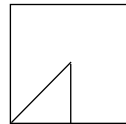
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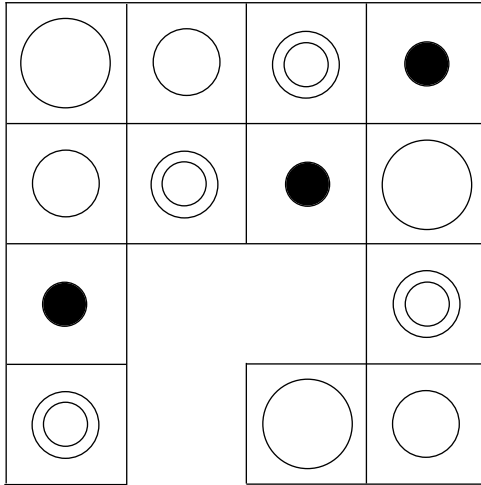
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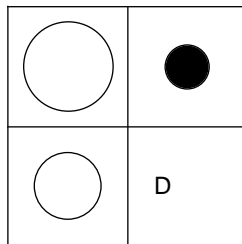
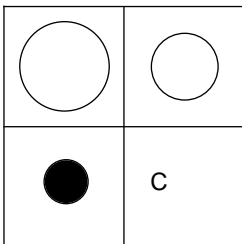
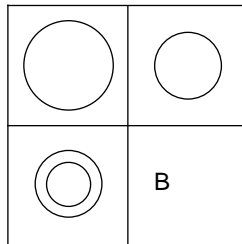
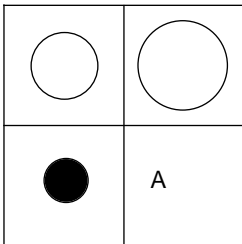
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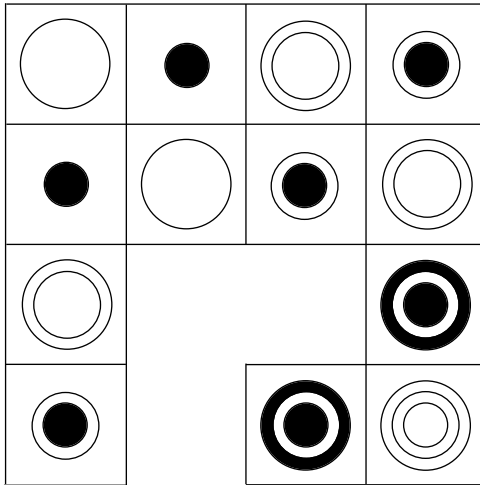
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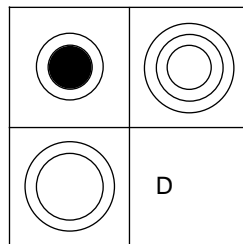
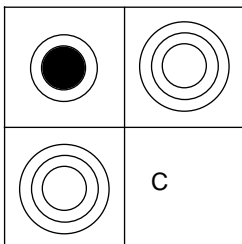
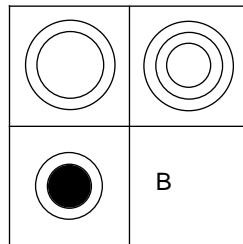
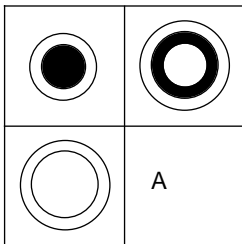
Which is the missing section?



(vii)

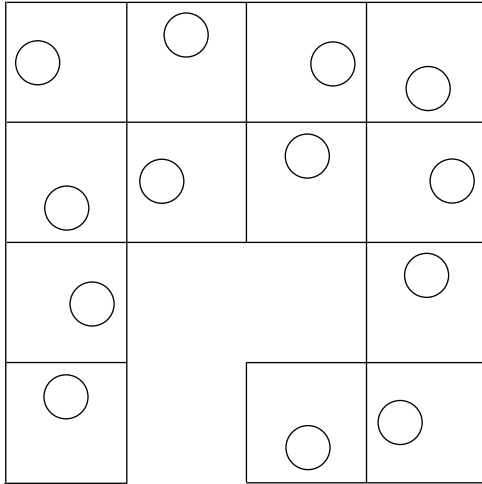


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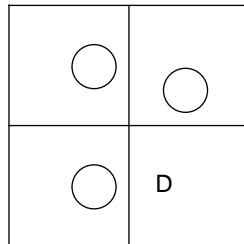
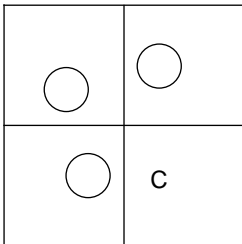
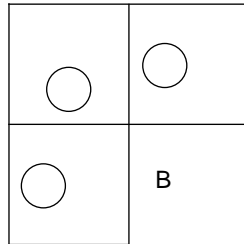
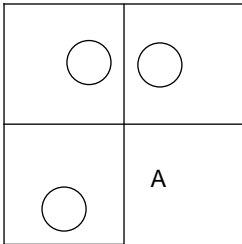


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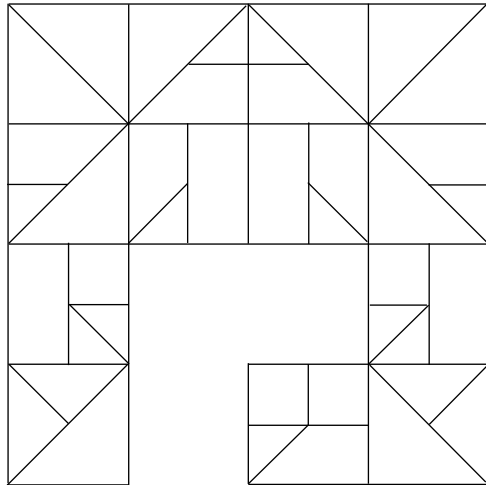
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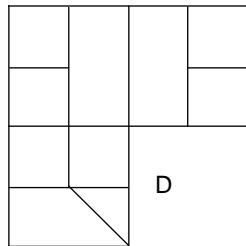
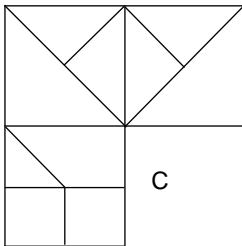
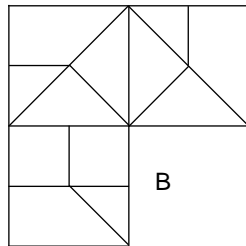
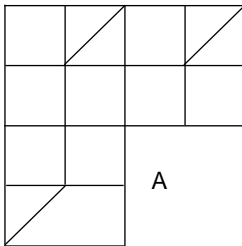
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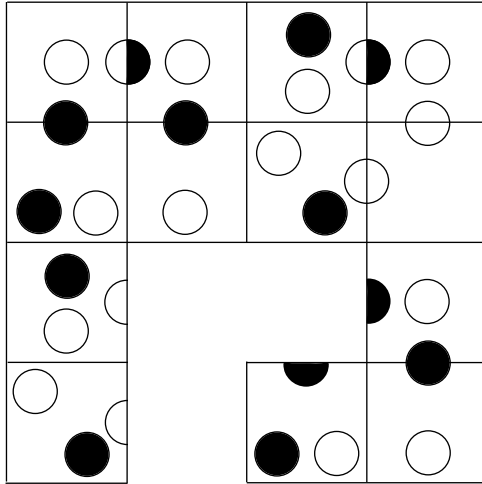


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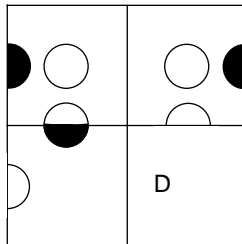
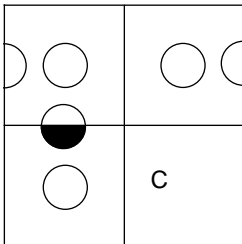
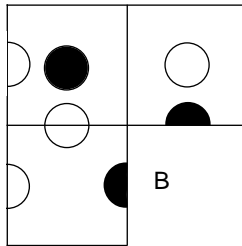
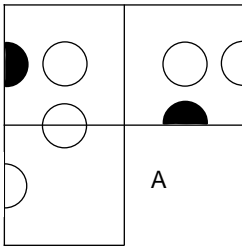


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(x)



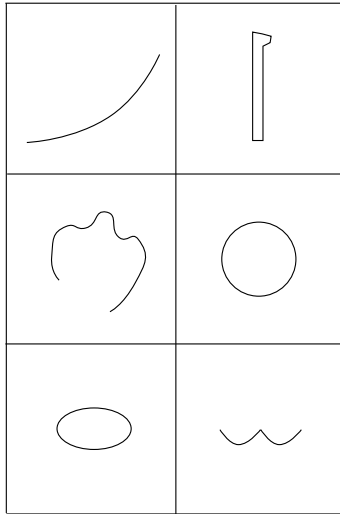
Which is the missing section?



Symbolic interpretation

- 2 In each of the following use your imagination to create an original sketch or drawing of something recognizable incorporating the symbol already provided.

You have 20 minutes in which to complete the six drawings.

*Lateral thinking word puzzles* (Answers, see pp. 169–70)

- 3 All ten word puzzles in this test require a degree of lateral thinking. These exercises are not to test your knowledge of word meanings, but are designed to exercise your flexibility of thought when faced with novel situations.

Several of these puzzles require what we sometimes describe as *three-dimensional thought*, i.e. an analysis of the puzzle before you, closer inspection of the puzzle to search for hidden patterns or meanings, and finally an exploration of the puzzle beyond its visible boundaries in your search for a solution.

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There is no time limit with these puzzles. If you cannot solve them at the first attempt, do not be tempted to look straight at the answer. Instead return to the puzzle at a later time or date and have another look at the problem. It is possible that your subconscious mind has been analysing the puzzle all the while, and the answer may suddenly appear to you quickly and unexpectedly.

- (i) Carolina allspice
goose eggs
photo opportunities
bassoonists
the greenhouse effect
sea adders

What do the above have in common that the following do not?

- bread and butter
- traffic cops

- (ii) What letters should replace the question marks?

F	I
F	O

S	E
F	I

T	H
S	I

S	E
T	E

E	I
E	L

?	?
?	?

(iii) What word has been placed in the wrong column?

Column A Column B

faithful broom

master hand

soldier born

fashioned moon

(iv)

archery

obvious

rocket

trident

symmetrical

rectify

hamburger

?

Which comes next?

accolade, biography, stealthily, acropolis or
wickedest?

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(v)

DAME	EDGE	ACRE	ROAD
RISE	AGOG	ROPE	EVEN
ARID	SPIN	INCH	AFAR
WIND	ELSE	APEX	?

What word should replace the question mark?

hope, rail, card, find, opus or that

(vi) What do the following have in common?

the Common Market

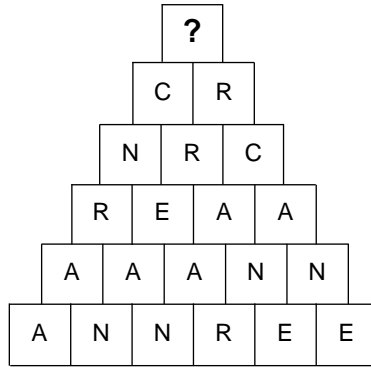
peanuts

the Garden of Eden

plastic bags

fixed costs

(vii) What letter should replace the question mark?



(viii) What do these words have in common?

herons, notes, toners, toothy

(ix) Put these words into three groups of two words each so that each pair of words has a common link.

tacit, wayfarer, elope, formal, governor, ruler

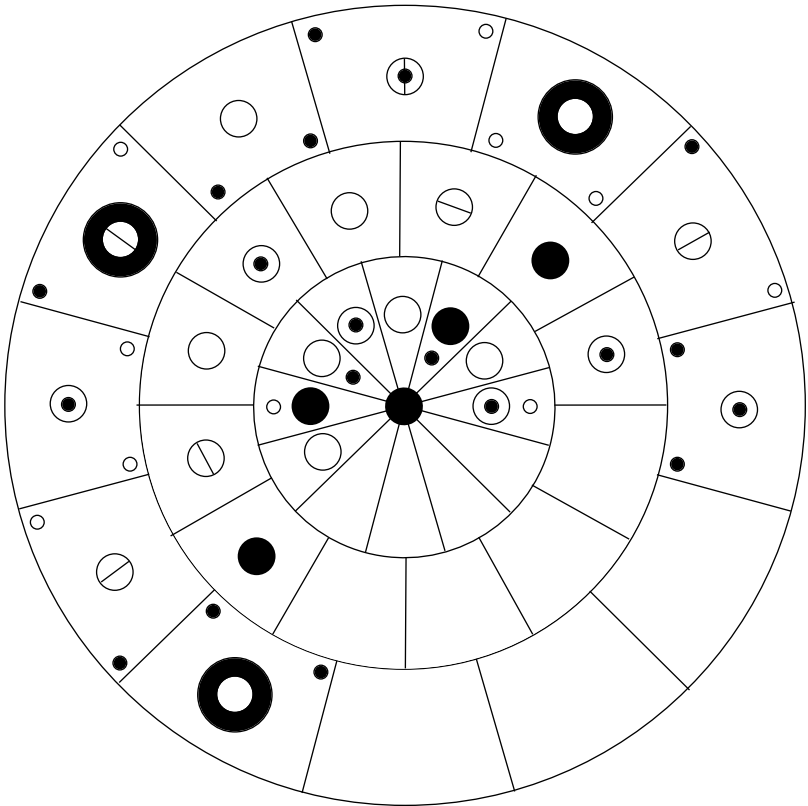
(x) What feature do the following groups of letters have in common?

LISS NERK WED ZASS EXD

The circles of your mind (Answer, see p. 171)

- 4 We observe symmetrical patterns every day of our lives as they occur in nature and in designs such as wallpaper or tiling. In this experiment we have created a circular symmetrical pattern of different designs of circles.

Following the ground rules already established, can you fill in all the remaining blank sections with the correct symbols to recreate the same symmetrical pattern?



Divergent ability (Scoring/analysis, see p. 172)

- 5 This test is based on Gestalt and Jackson's Test of Divergent Ability, which requires the subject to name as many new uses as possible for everyday objects such as a brick or a piece of string.

Here, you are required to name up to 12 new uses for a bucket in 10 minutes. You should work strictly to the time limit otherwise your score will be invalidated.

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

Rebuses (Answers, see pp. 172–3)

- 6 A rebus is the enigmatic representation in visual form of the sounds of a name or word. Rebus is a Latin word meaning *by things*, indicating a coded text which can be deciphered by studying its visual display.

Four examples are shown below which illustrate the type of creative thinking necessary to solve such riddles.

(i) DES
DES

(ii) ::
::
::
::::

(iii) MEASU

(iv) M E
A L

Now try the following, the first set of six should produce just one word answers, while the second set of 12 each represent a familiar phrase.

There is no time limit, we are simply aiming here to put your powers of creative thinking to the test. For any that you cannot solve we suggest you return to them later and have a fresh look. It is quite possible that the answer will suddenly come to you, as a result of your subconscious mind continuing to analyse the problem.

(v) One word

<p>1.</p> <p>O₂H</p>	<p>2.</p> 
<p>3.</p> 	<p>4.</p> <p>ETTE LA</p>
<p>5.</p> <p>NOMMAG</p>	<p>6.</p> <p>TPROUT</p>

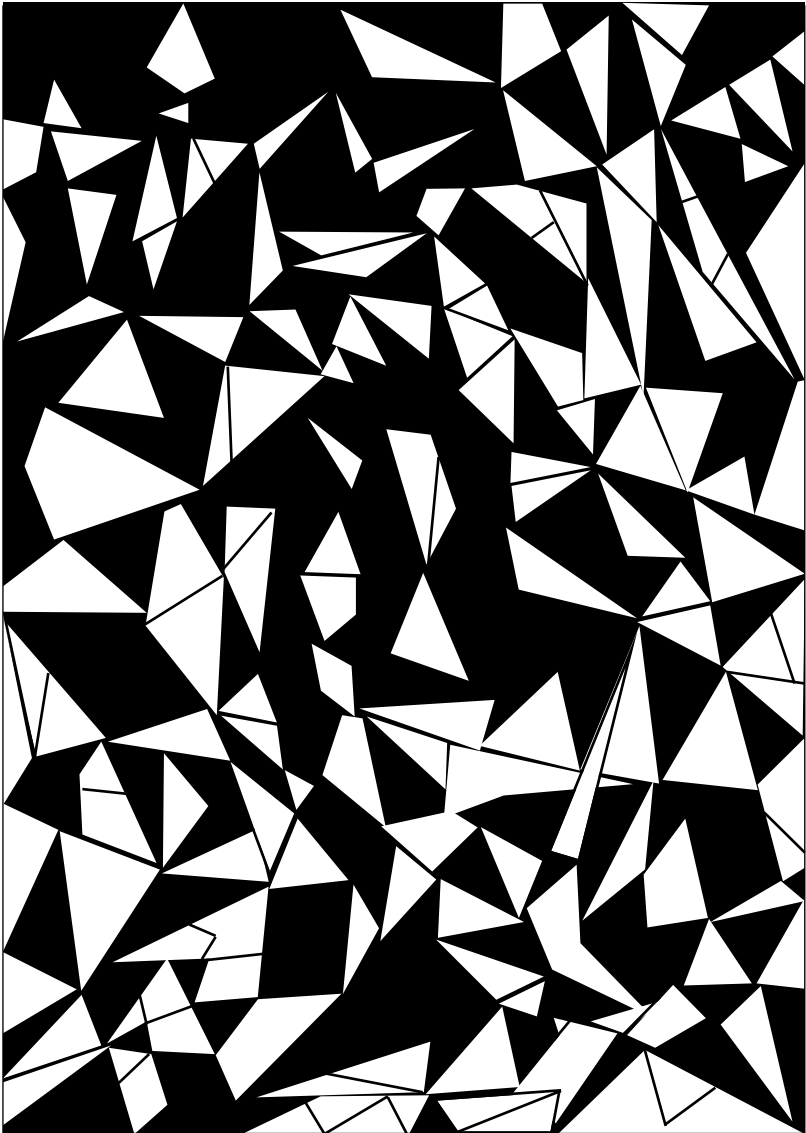
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(vi) Familiar phrases

<p>1.</p> <p>WORLE</p>	<p>2.</p> <p>S I M D I E I I I I L L</p>	<p>3.</p> <p>...VOUS SYS...</p>				
<p>4.</p> <div style="border: 1px solid black; padding: 10px; width: fit-content; margin: auto;"> <p>WINDO SF</p> </div>	<p>5.</p> <p>TOO</p>	<p>6.</p>				
<p>7.</p> <table style="margin: auto; border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 5px;">SE</td> <td style="padding: 5px;">SS</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">IO</td> <td style="padding: 5px;">NS</td> </tr> </table>	SE	SS	IO	NS	<p>8.</p> <p>TOGO BOARD</p>	<p>9.</p> <p>LOBSDUE</p>
SE	SS					
IO	NS					
<p>10.</p> <p>THROUGH THROUGH</p>	<p>11.</p> <p>FALL</p>	<p>12.</p> <p>CHIEF C N O S</p>				

The hidden star (Answer, see p. 174)

7 Find a perfect five-pointed star in the diagram below:



Lateral thinking number puzzles (Answers, see pp. 175–7)

8 This is a set of 10 number puzzles designed to exercise your powers of lateral thinking and creativity. None of these puzzles involve anything more than just a very basic knowledge of mathematics. What they do involve, however, is an ability not to take things at face value and to be able to think sideways and look beyond what appears before you on the paper. You must explore every possibility, for example, it might be necessary to study the numbers in relationship to the diagrams in which they are presented. Above all, be prepared for the unexpected, and allow your mind to search for the unlikely and unpredictable.

There is no time limit with these puzzles. If you cannot solve them at the first attempt, do not be tempted to look straight at the answer. Instead, return to the puzzle at a later time or date and have another look at the problem as it is possible that your subconscious mind has been analysing the puzzle all the while.

(i) What number should replace the question mark?

4	7	1
6	1	3
4	2	3

5	1	3
2	8	5
2	3	1

1	2	6
2	1	2
4	5	?

(ii) What number should replace the question mark?

21		22	20			
	22				21	21
	12			11		
		12			?	
21		22				21
	12			11		

(iii) Continue this sequence to its logical conclusion.

2	5	6	3	8	4
---	---	---	---	---	---

7	4	8	3	6
---	---	---	---	---

1	1	6	3	8
---	---	---	---	---

--	--	--	--

--	--	--	--

--	--	--

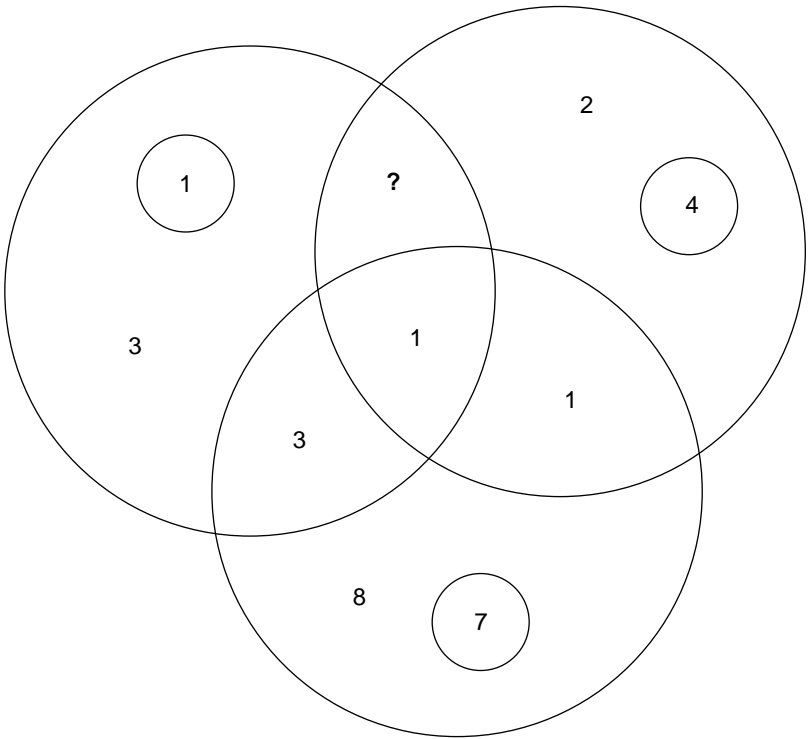
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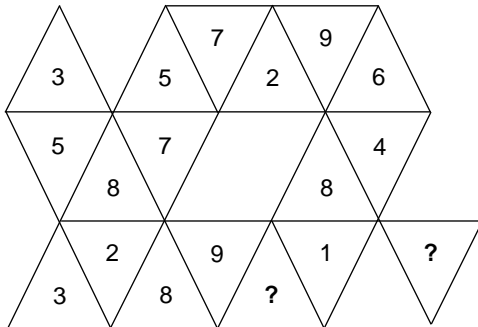
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(iv) What number should replace the question mark?



(v) What numbers should replace the question marks?



(vi) What number should replace the question mark?

7	11	4	
12	2	?	9
15	3	3	18
	15	22	7

(vii) What number should replace the question mark?

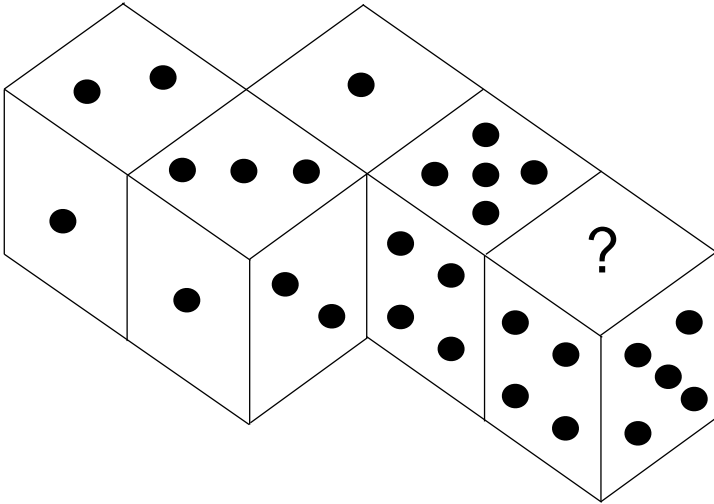
29	86	67	98
63			15
6			9
17	13	?	11

(viii) What numbers should replace the question marks?

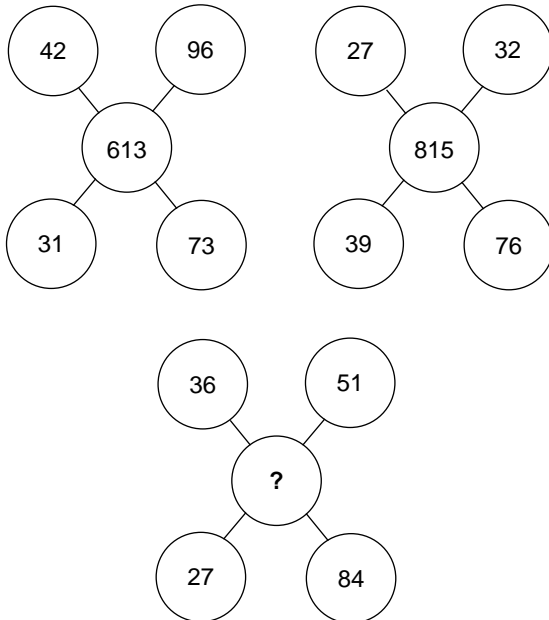
58				
56		32		
82	36	58		
63	?	56	32	
58	23	65	?	36

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(ix) What arrangement of dots should appear on the missing face?

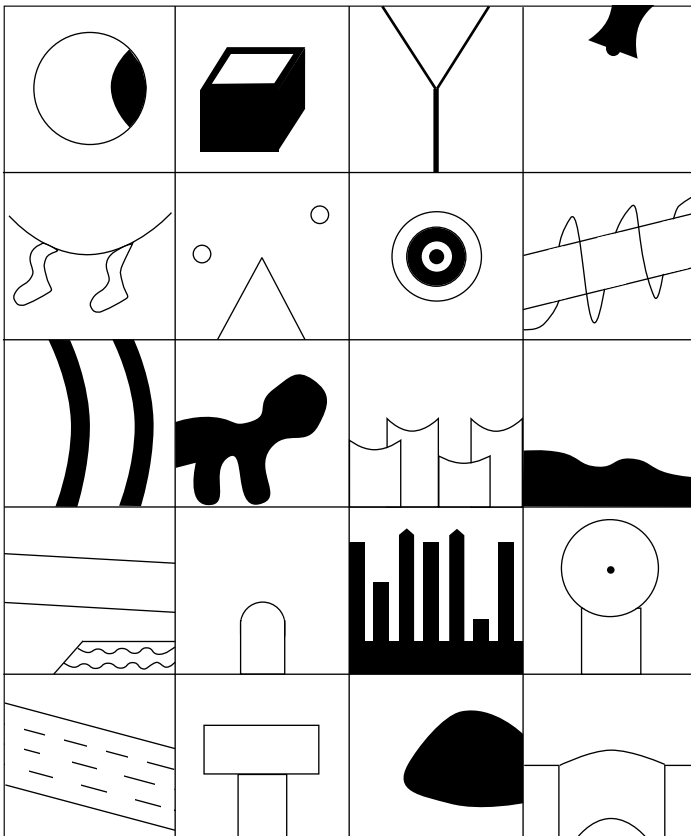


(x) What number should replace the question mark?



Interpretation

- 9 The object here is to interpret each of the twenty drawings in the wildest and most imaginative way you can. You may also try playing the game with other people. The wilder you think someone's suggestion is, the better it is and the more creative they are. For example, you might think that drawing number 5 is a pair of socks hanging from a washing line. But is there anything else it can be? Let your imagination run riot and see what you can come up with.



Situation puzzles (Answers, see pp. 177–8)

- 10 These real-life puzzles are designed to develop creative thought and problem-solving capacities. You have to use your imagination to try and arrive at an explanation for each scenario. A suggested answer is given in each case, but the main object is to come up with a plausible explanation.

Each of these situations can also be played as a game between two or more people. The situation is presented to the group, who must then try to find out what is going on by asking further questions. The person who initially presented the situation can only answer ‘yes’ or ‘no’ to questions (or occasionally ‘irrelevant’).

- (i) A man is running along a corridor with a piece of paper in his hand. The lights flicker and the man drops to his knees and cries out in despair.
- (ii) A London workman visits eight foreign countries in one day, despite having no passport, and leaves of his own accord.
- iii) Two men digging a trench suddenly looked at each other angrily and started to argue. They make a phone call to their boss after which one man goes home with a smile on his face and the other continues digging, angrier than ever.
- iv) Alan sat on Doris and killed her when the music stopped.
- (v) Harry regularly visits his grandfather on the 14th floor of an apartment building by going to the 12th floor and walking up two flights of stairs. Last year he only took the elevator to the 11th floor.

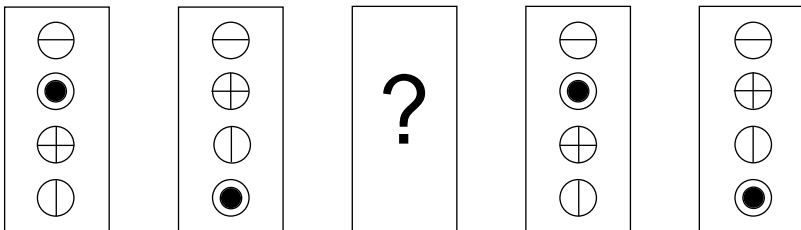
- (vi) A couple go to a movie. During the movie the husband strangles his wife. He is able to get her body home without attracting attention.
- (vii) A man tells his boss, 'I had a terrible dream last night that if you take your planned flight today, your plane will crash.' 'I should fire you', said the boss, 'but in view of your concern I will let you off with a warning.'
- (viii) A lady enters a store and says 'Pain'. The shopkeeper gives her exactly what she requires.
- (ix) At the bottom of my house is a straight road. I frequently drive east along this road for 300 yards, yet when I stop, my car is still facing east.
- (x) A man is sitting on the window ledge of his twenty-storey apartment block. Suddenly he jumps off, but is not injured.

Sequential patterns (Answers, pp. 178–81)

11 In each of the following decide what pattern or movement is occurring, then draw what you consider to be the missing figure to complete the pattern or sequence.

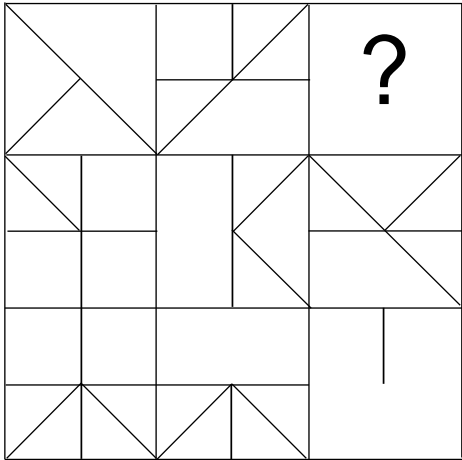
You have 45 minutes to complete the ten questions.

(i)

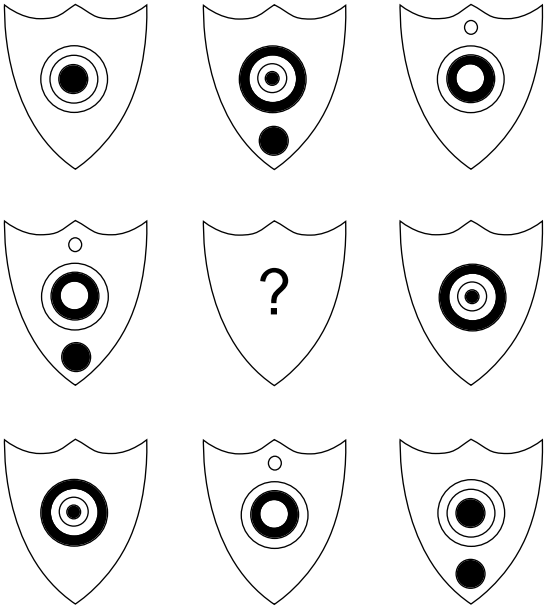


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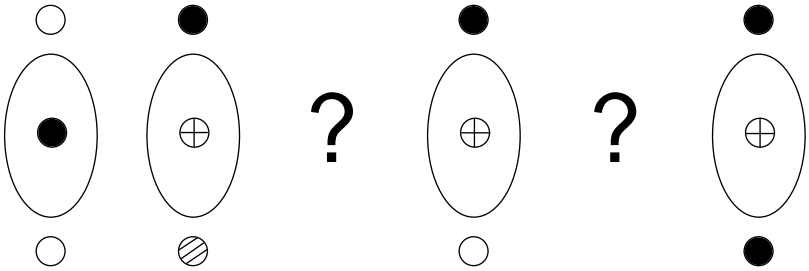
(ii)



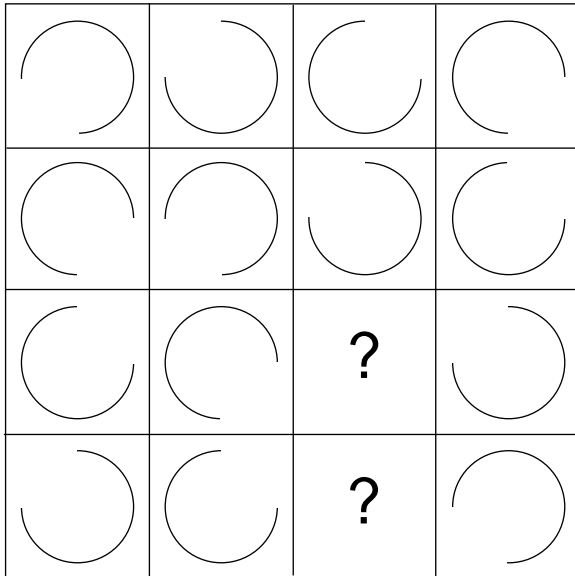
(iii)



(iv)



(v)

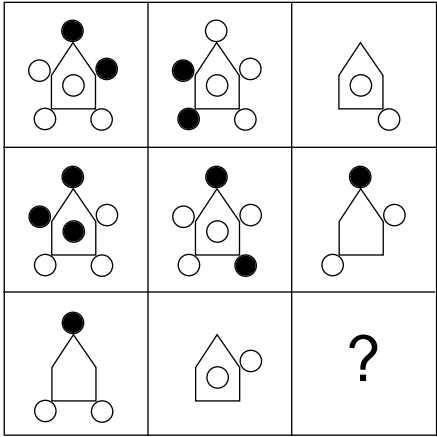


(vi)

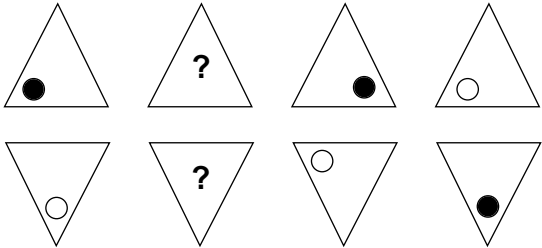


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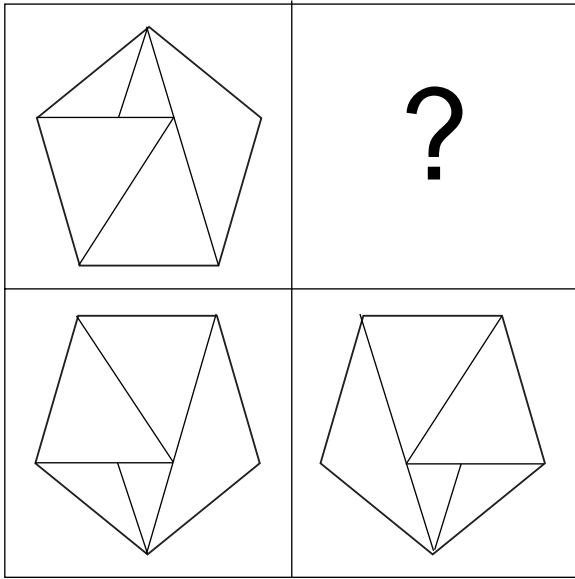
(vii)



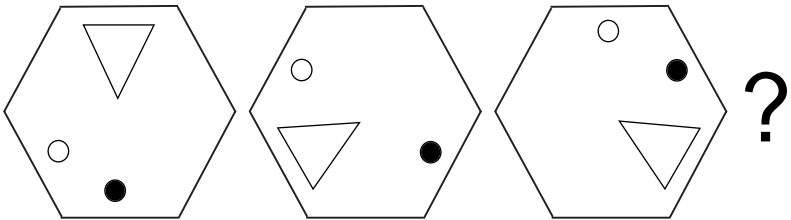
(viii)



(ix)

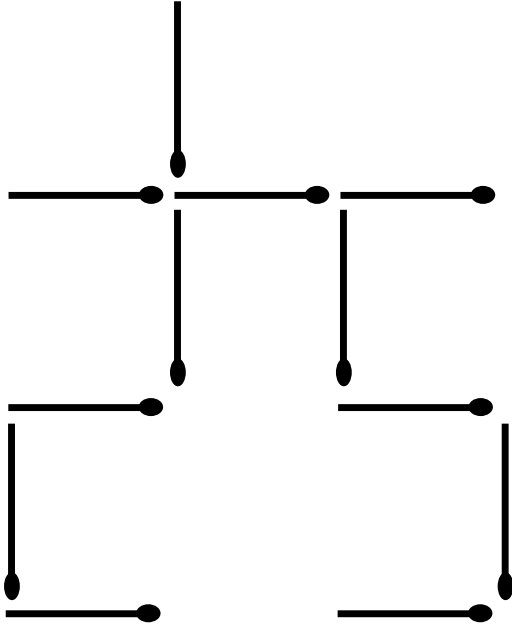


(x)

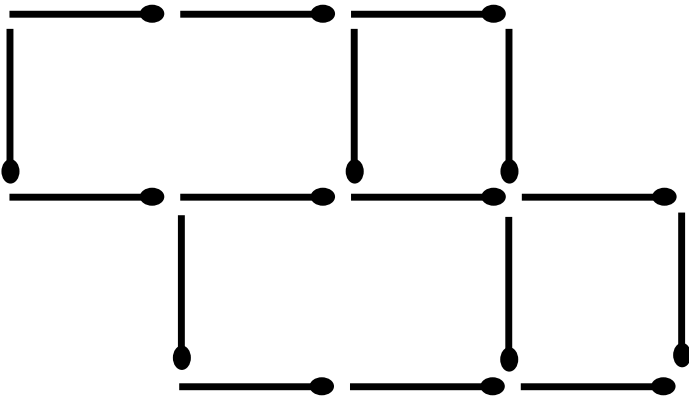


Matchstick puzzles (Answers, see pp. 182–84)

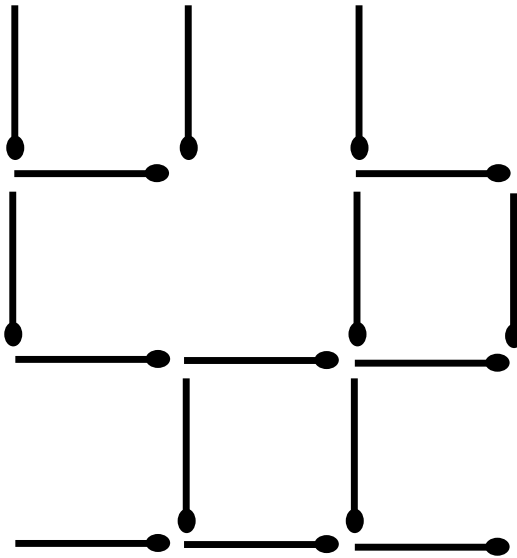
12 (i) Change 3 matches to create 3 squares.



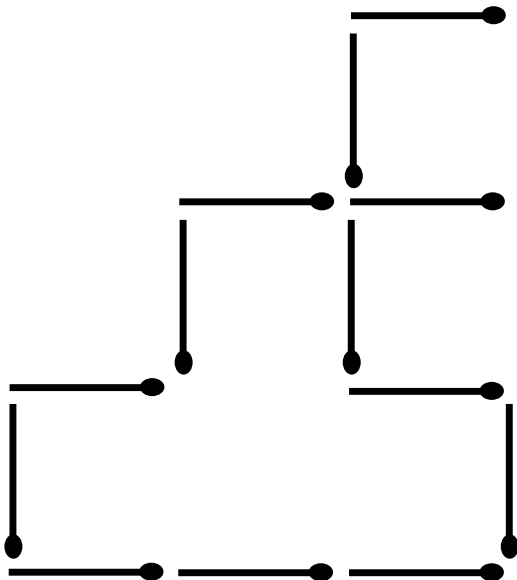
(ii) Change 2 matches to create 4 squares.



(iii) Change 3 matches to create 5 squares.

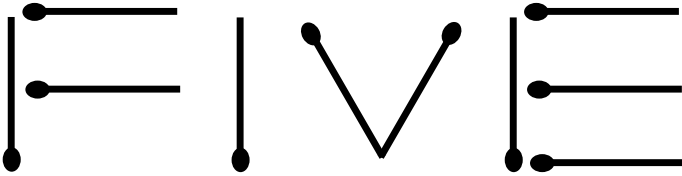


(iv) Change 3 matches to create 4 squares.



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(v) First arrange 10 matches to equal 5.



Then take away 7 matches and leave 4.

(vi) Re-arrange 3 six-pointed stars to form one large six-pointed star.

