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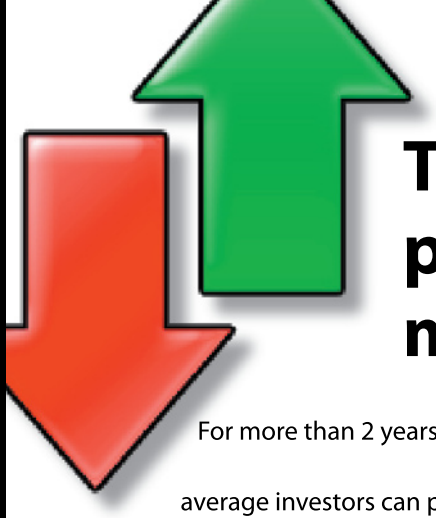

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IQ Brainteasers

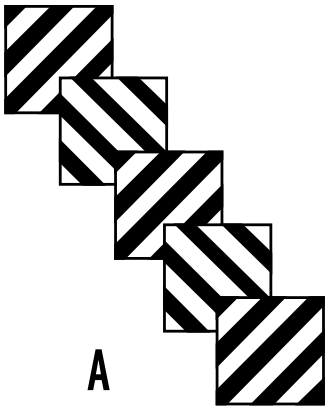
IQ Brainteasers is the ultimate test of your brain power. Packed with over 300 puzzles, your visual, mathematical and lateral-thinking abilities will be stretched to the limit. Also included are some Japanese puzzles – Sudoku, Bridges and Slitherlink – which will really get your brain cells working.

Divided into puzzle types, the sections are not in any order of difficulty – you are just as likely to find two easy puzzles side-by-side as a more tricky one next to a simple one. Some will require a degree of mathematical ability, others you just need to use your eyes, while others still will need some knowledge of words.

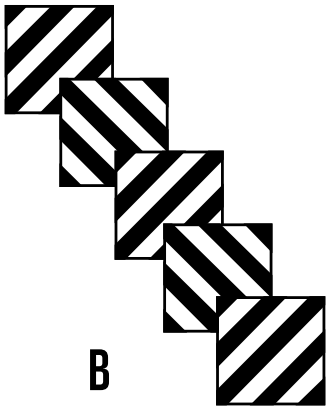
For the Japanese section, the principle with Sudoku is simple: all you need to do is place a number from 1 to 9 in each empty square, so that every row, column and 3x3 box contains the numbers 1–9. There's no maths or guesswork involved, just logic. In the Slitherlink puzzles you need to connect adjacent dots vertically or horizontally, to form a single loop with no crossings or branches. Each number indicates how many lines surround it. Empty cells can be surrounded by any number of lines. In the Bridge puzzles each circle contains a number that represents an island. You need to connect each island with vertical or horizontal bridges to form a continuous path connecting all the islands. The number of bridges must equal the number inside the island. There can be up to two bridges between two islands, and bridges must not cross islands or other bridges.

The solutions are given at the back of each section so you can check your answers, but try not to peek and complete as many as you can before looking.

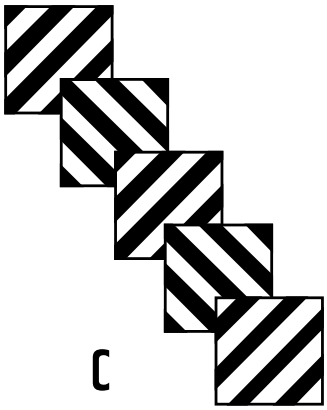
1 Which is the odd one out?



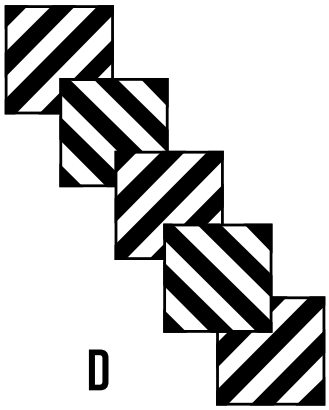
A



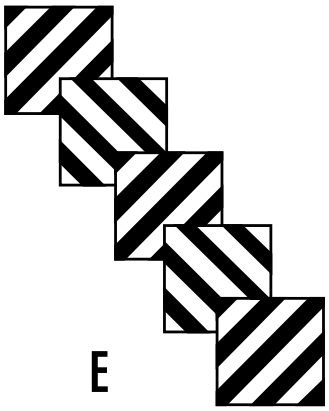
B



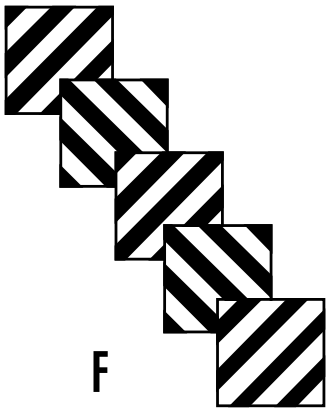
C



D

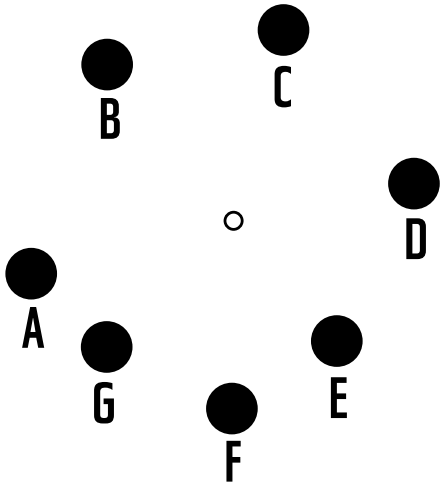


E

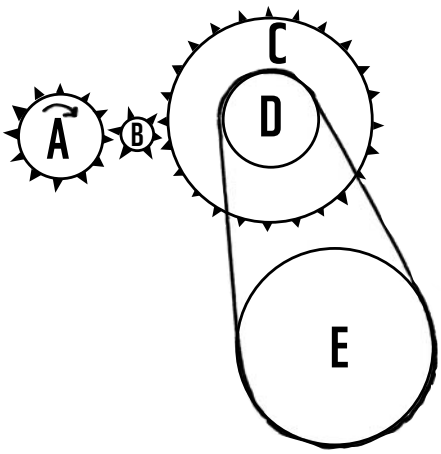


F

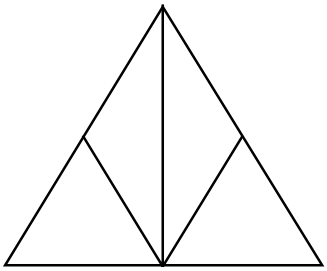
2 Which bowl is nearest to the jack (the white ball) and which is furthest away from it?



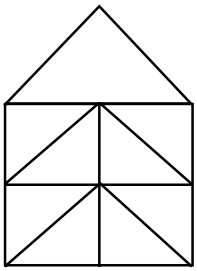
3 The diameter of pulley E is twice that of pulley D. If pinion A rotates eight times clockwise, how many times will pulley E rotate and in which direction?



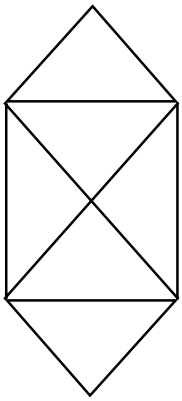
4 Which of these contains the most triangles?



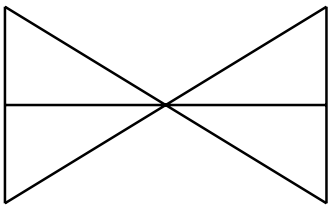
A



B

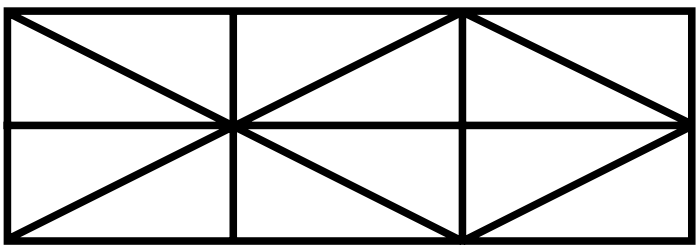


C



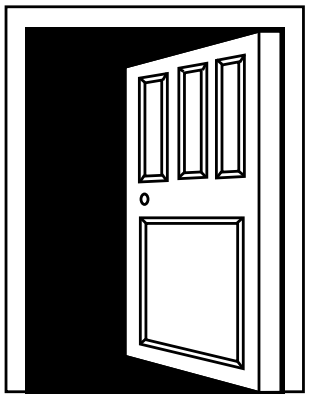
D

5 How many triangles are there here?

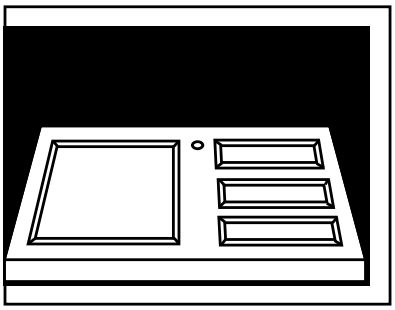


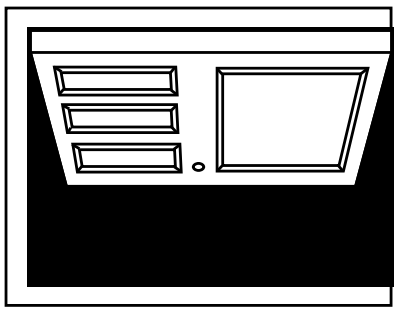
6 Which door is wrong?

A

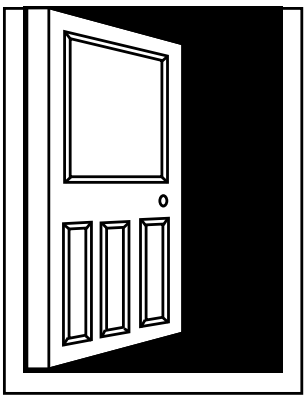


B

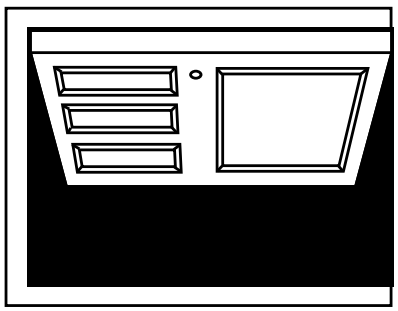




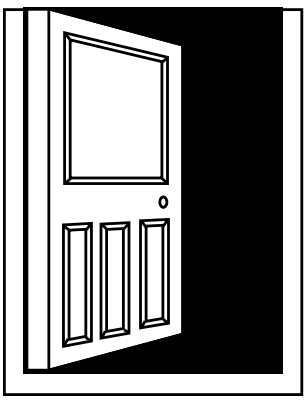
C



D

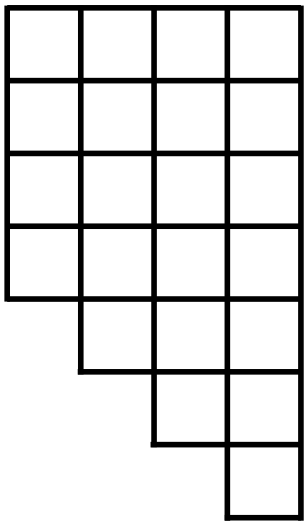


E

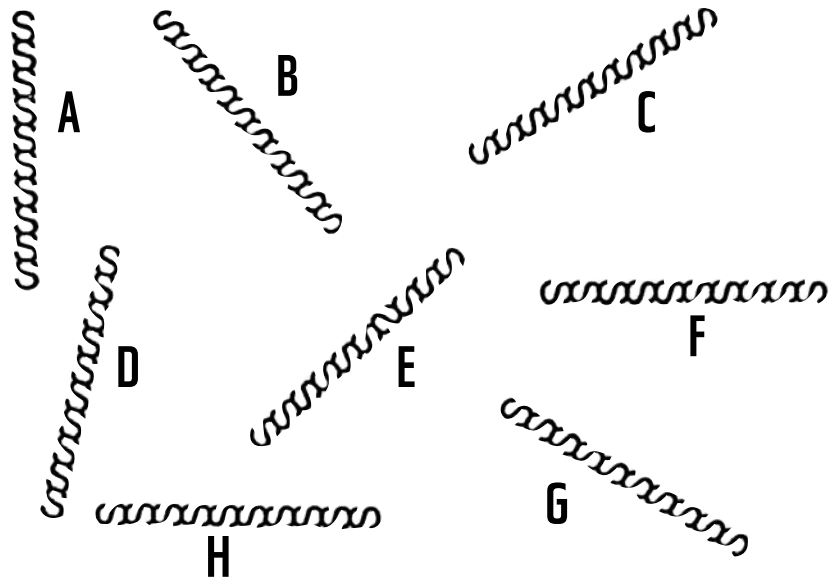


F

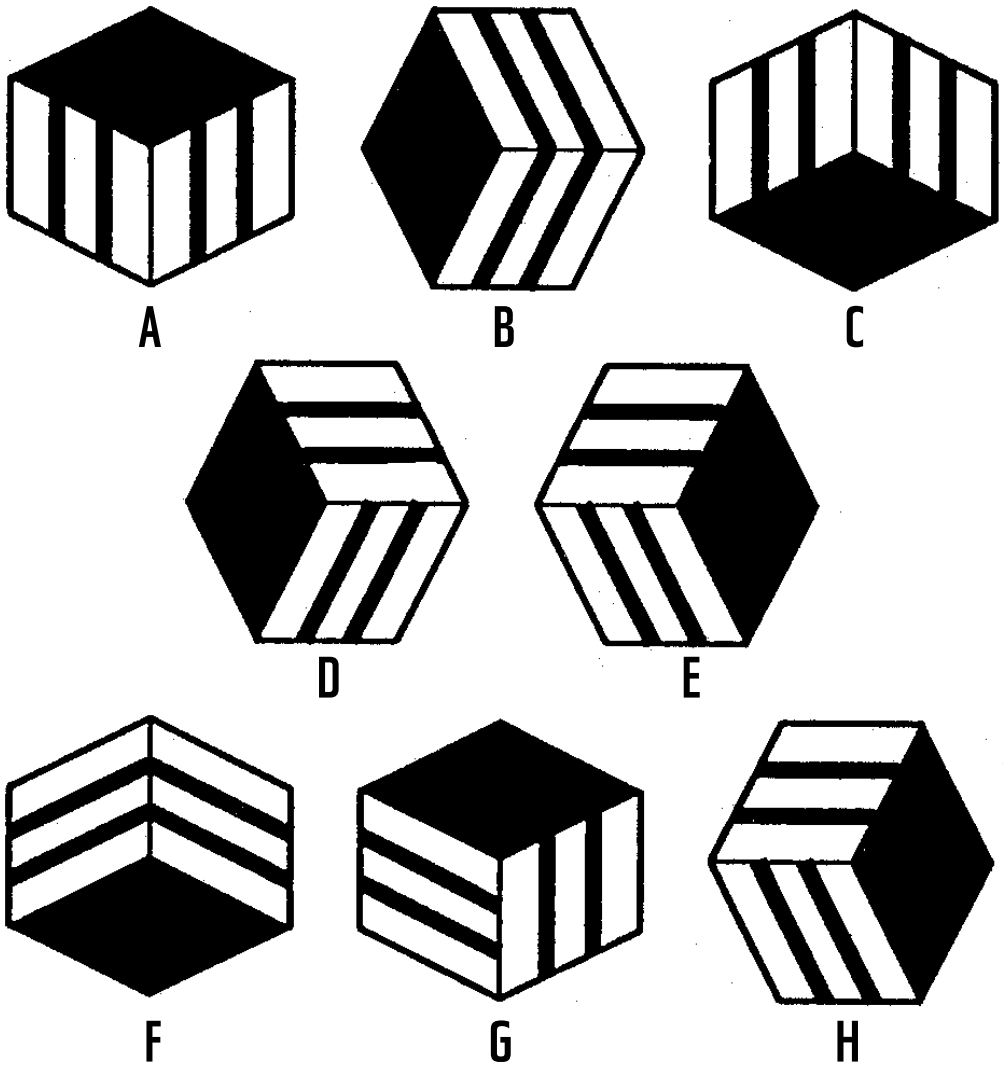
7 How many squares are there here?



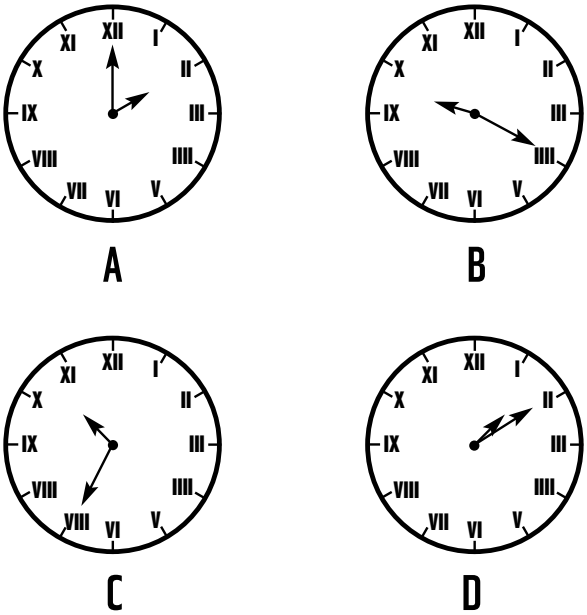
8 Which is the odd one out?



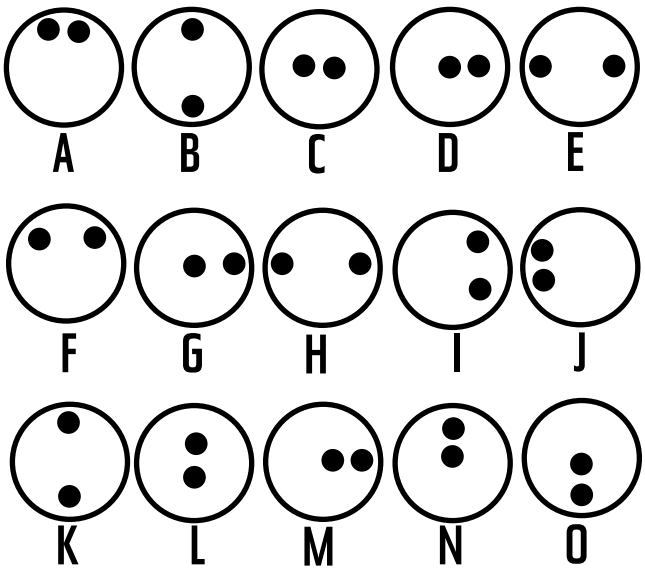
9 Arrange these cubes into four matching pairs.



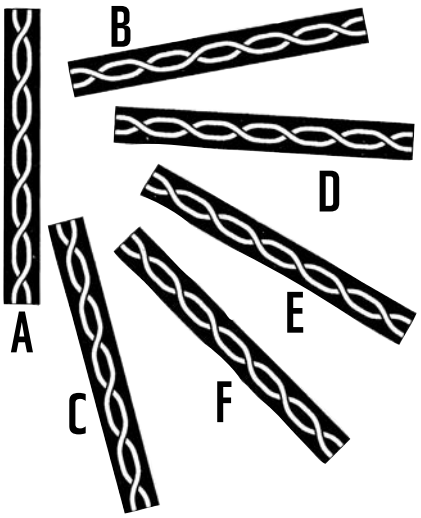
10 Which clock is the odd one out?



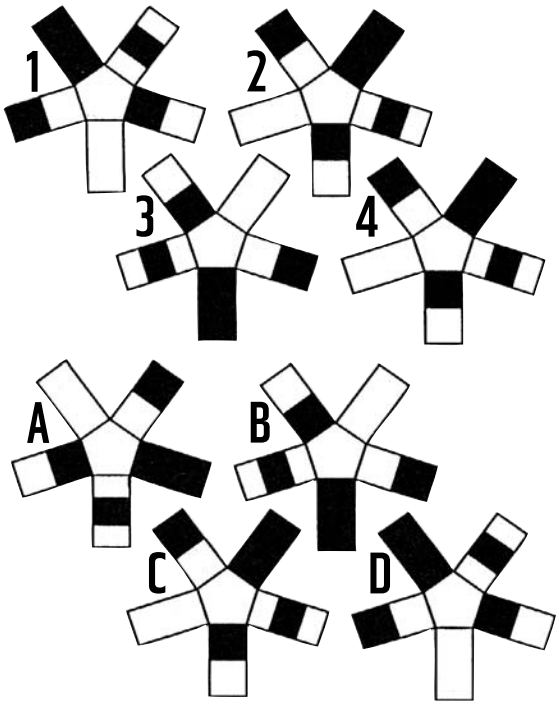
11 Which is the odd one out?



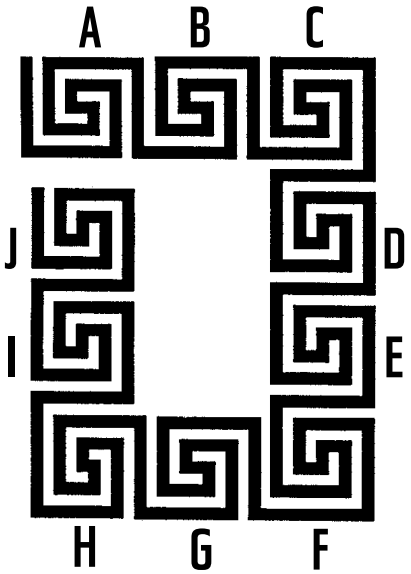
12 Which is the odd one out?



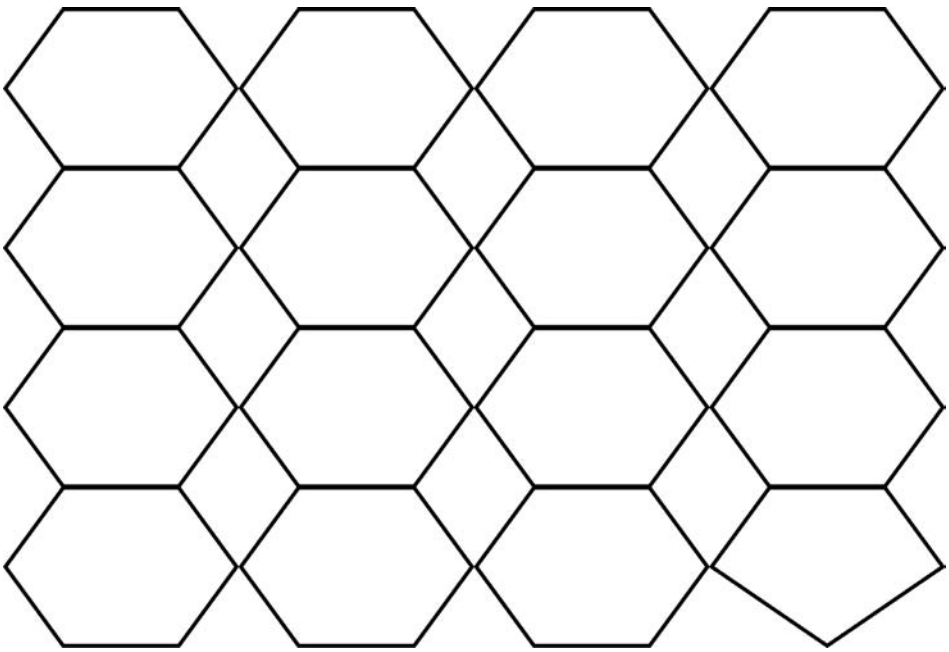
13 Which of the figures at the bottom – A, B, C or D – follows number 4?



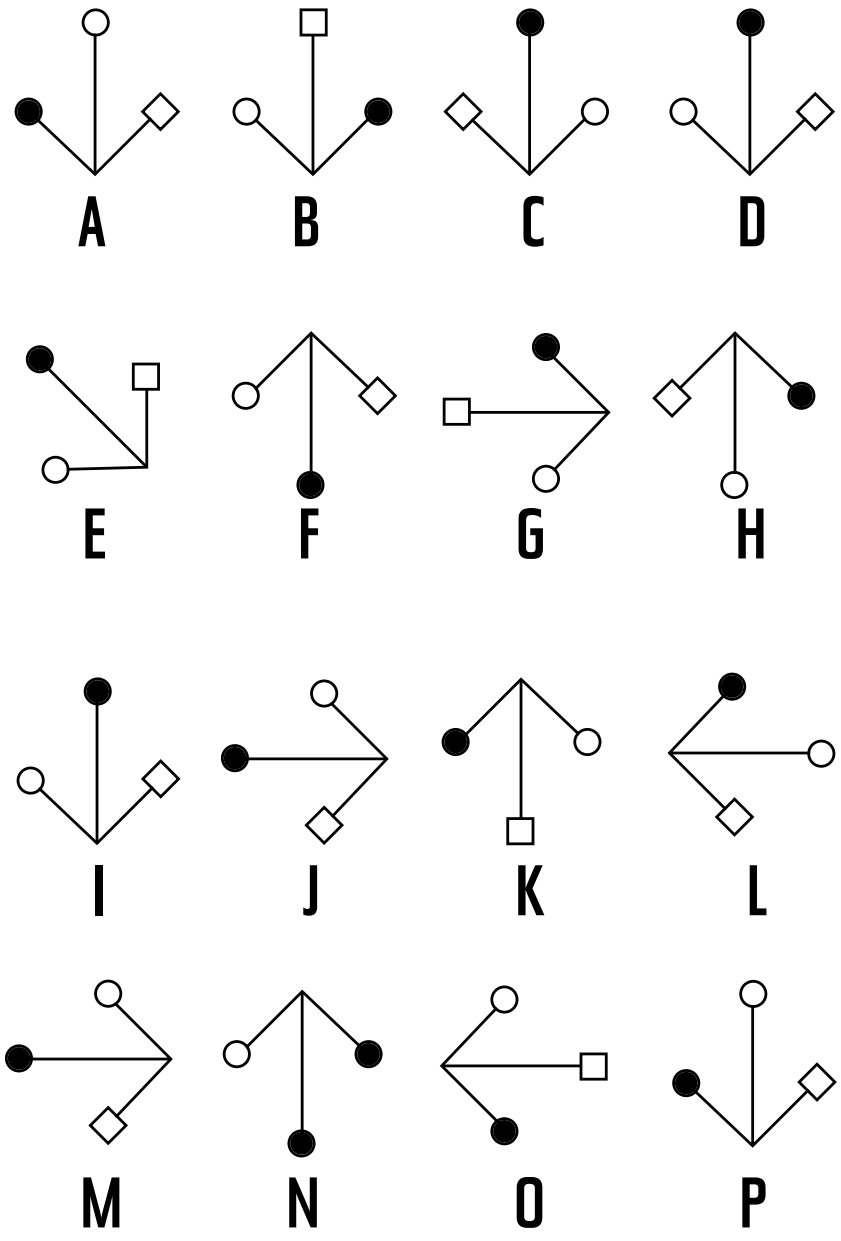
14 Which one spoils the frieze?



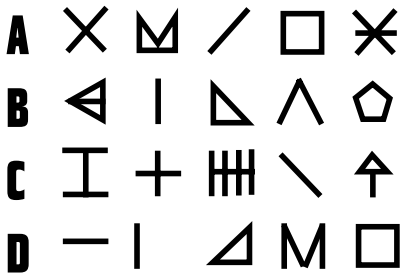
15 How many hexagons (six-sided figures) can you find here?



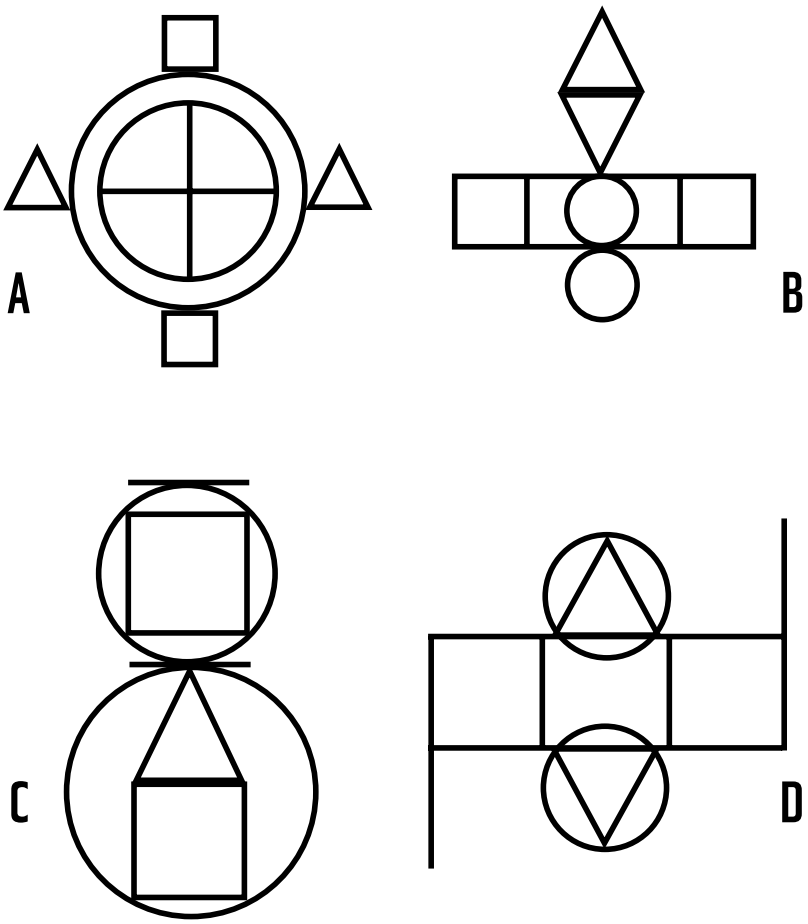
16 Which is the odd one out?



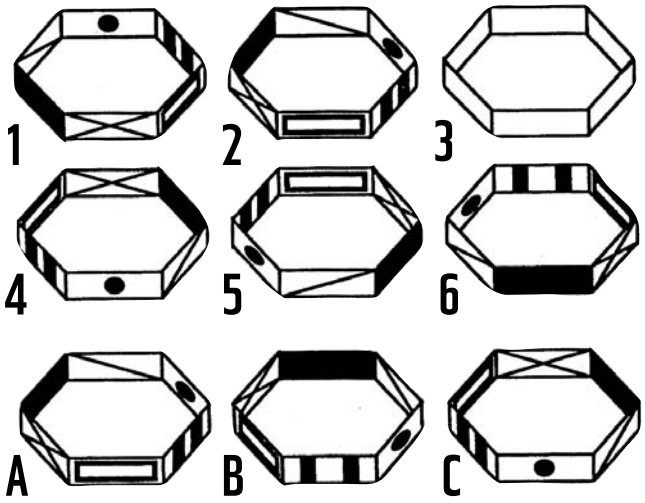
17 Which row is the odd one out?



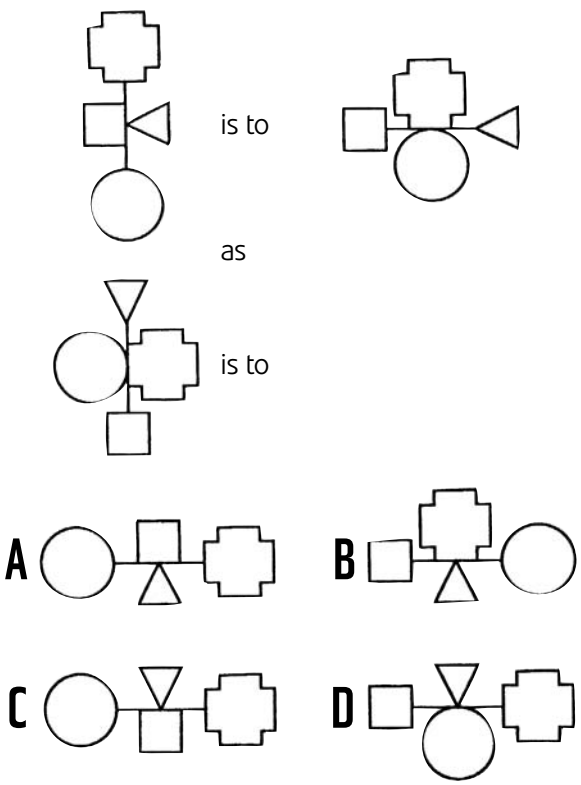
18 Which is the odd one out?



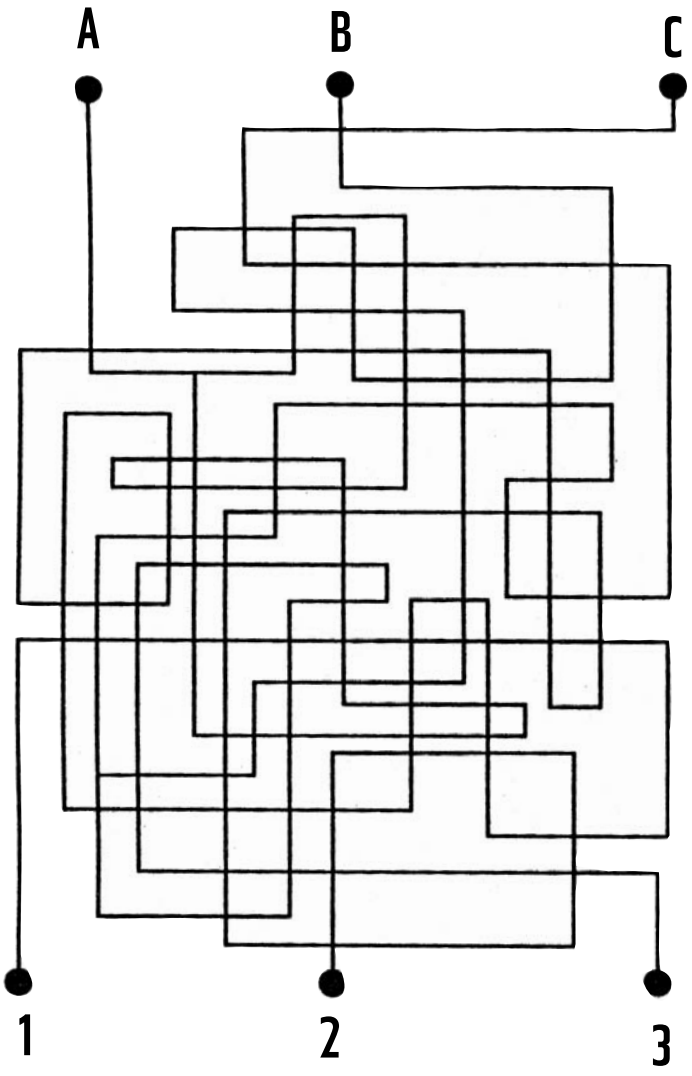
19 Which of the figures at the bottom A, B or C, should take the place of number 3?



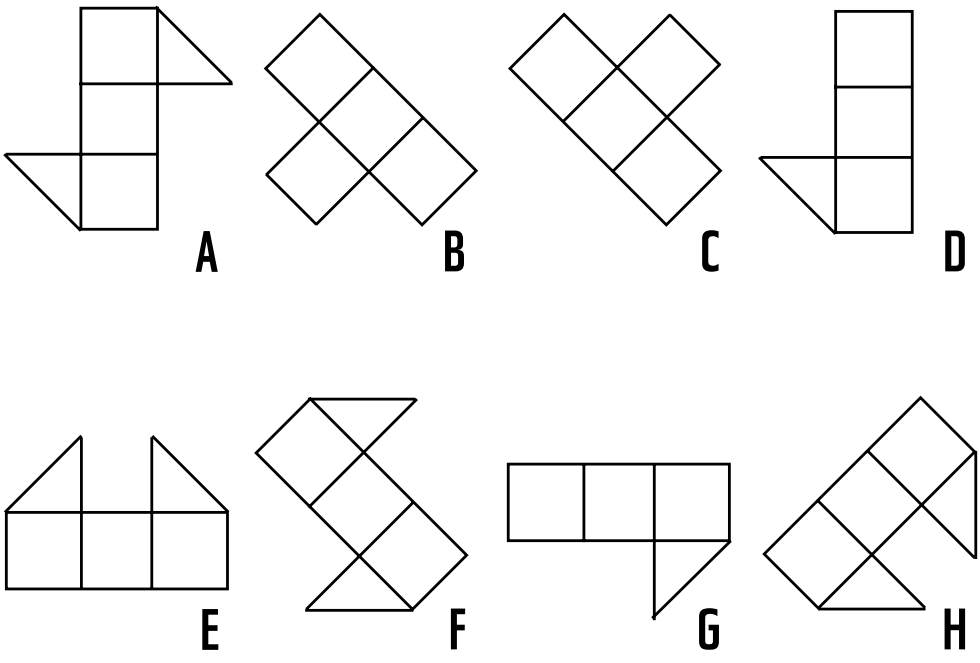
20



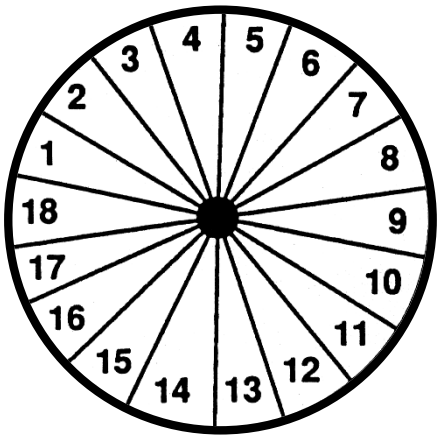
21 Using your eyes only and without the aid of a pointer, trace which of the numbered lines will reach any of the goals marked A, B and C. State the number of the line and the goal reached. Right angles must be used only when there is no alternative route.



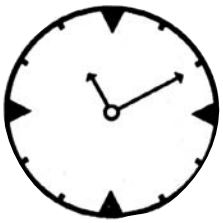
22 Arrange these shapes into four pairs.

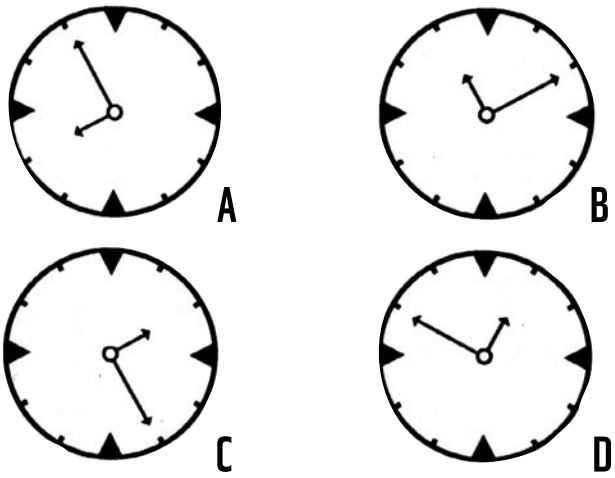


23 Which is the smallest segment and which is the largest segment in this circle?

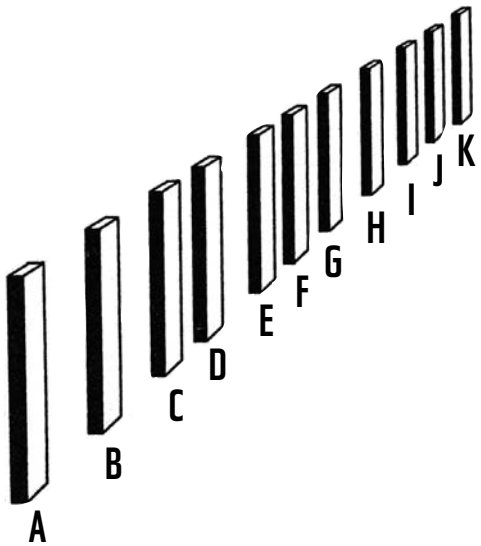


24 If this clock were turned 90 degrees anti-clockwise, which of those below would appear? (Do not turn the page.)

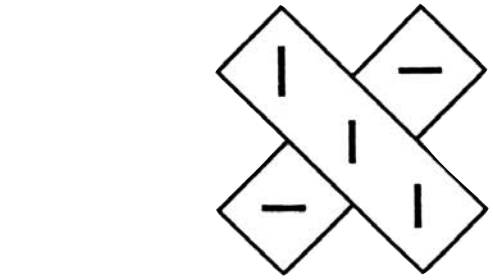


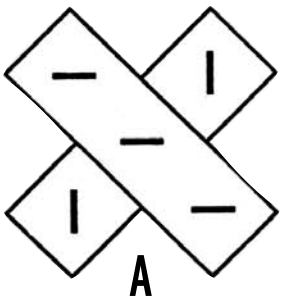


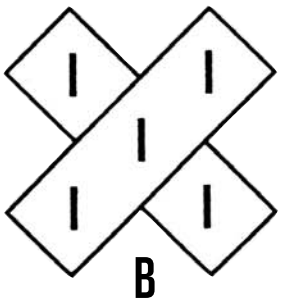
25 Eleven posts have been erected in a straight line and on level ground at regular intervals. Ten are of equal length. Which one is a different length?

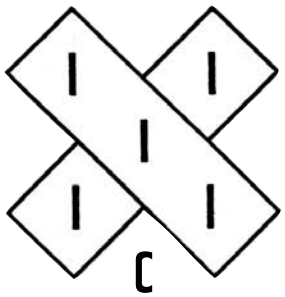


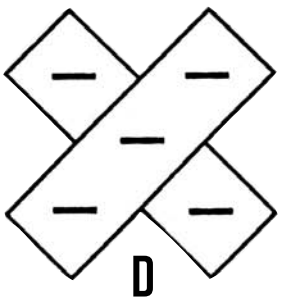
26 If the figure below were held in front of a mirror, which of the figures, A, B, C, D, E or F, would be reflected?

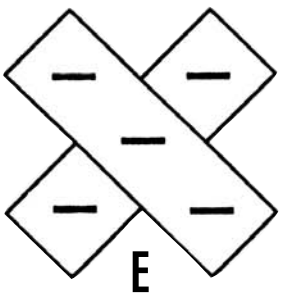


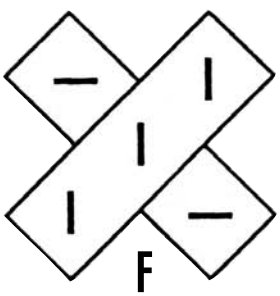




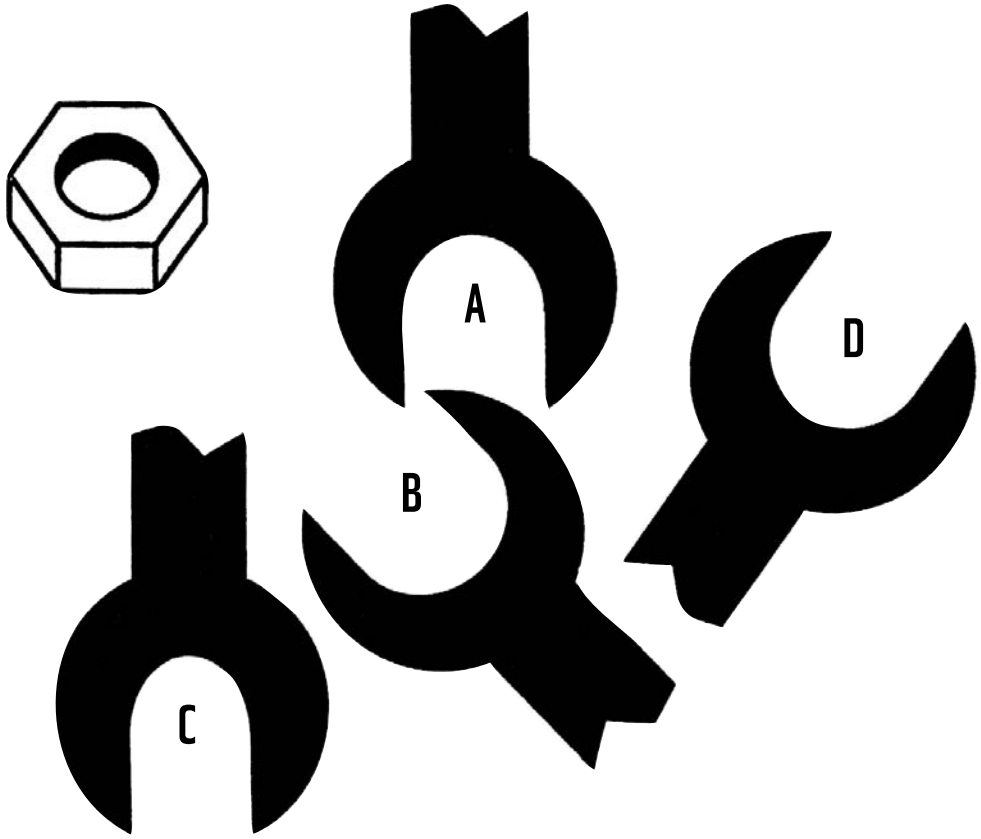




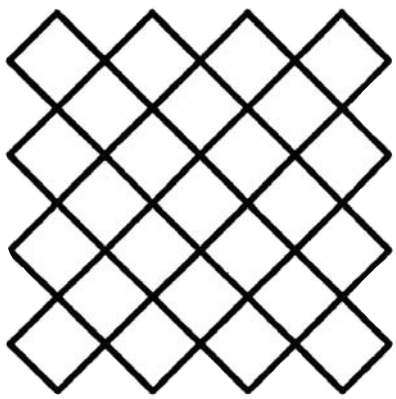




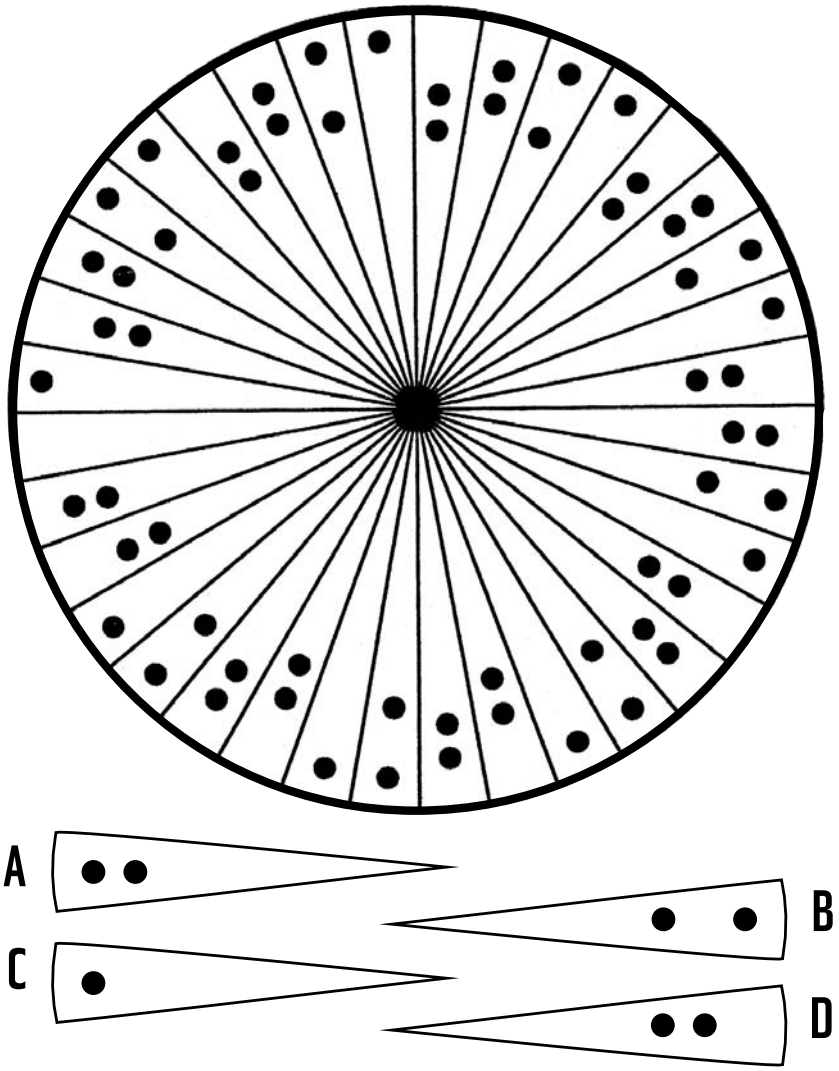
27 Which spanner fits the nut?



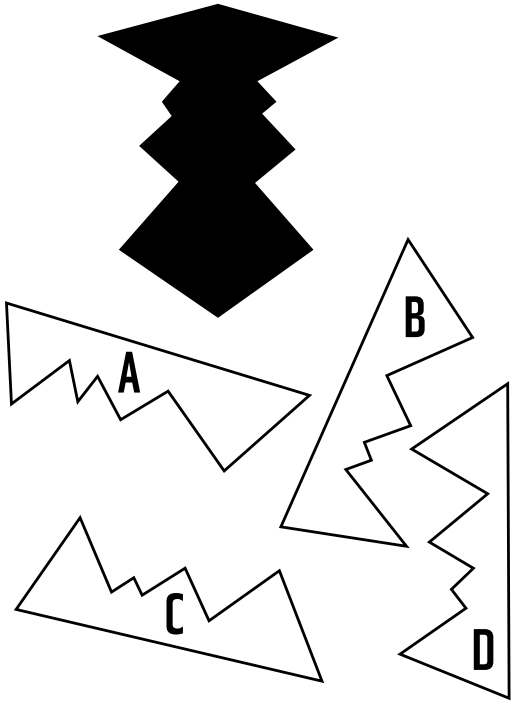
28 How many diamonds are there here?



29 Which of the sectors below – A, B, C or D – should fill the empty sector in the circle?

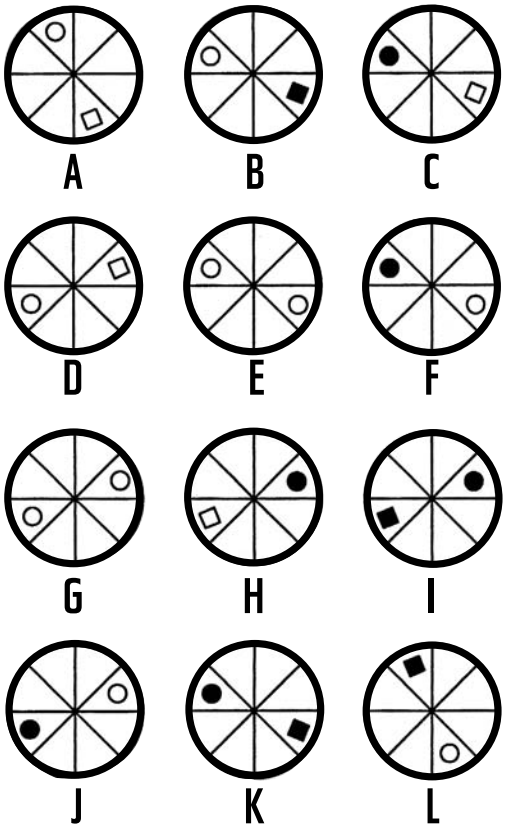


30 A sheet of paper is folded in half and cuts made into it. The paper is then unfolded to reveal this shape. Which of the figures – A, B, C or D – shows the original cuts?

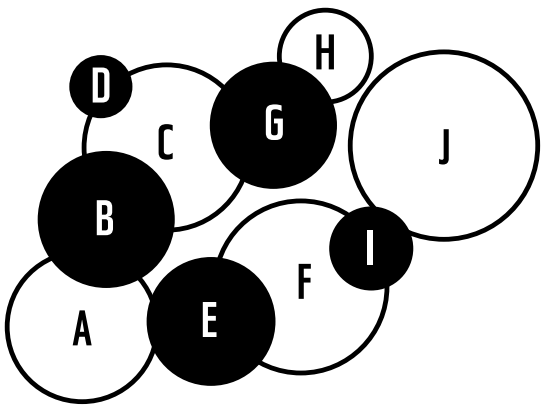


31 This sign was seen in Japan. What does it mean?

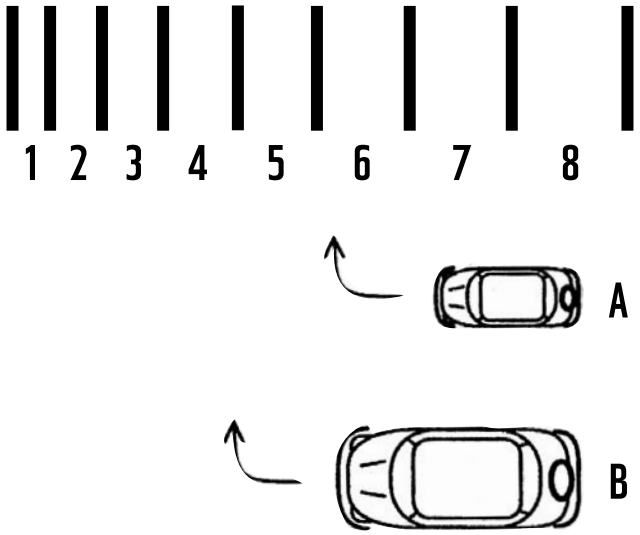
32 Match these designs into six pairs.



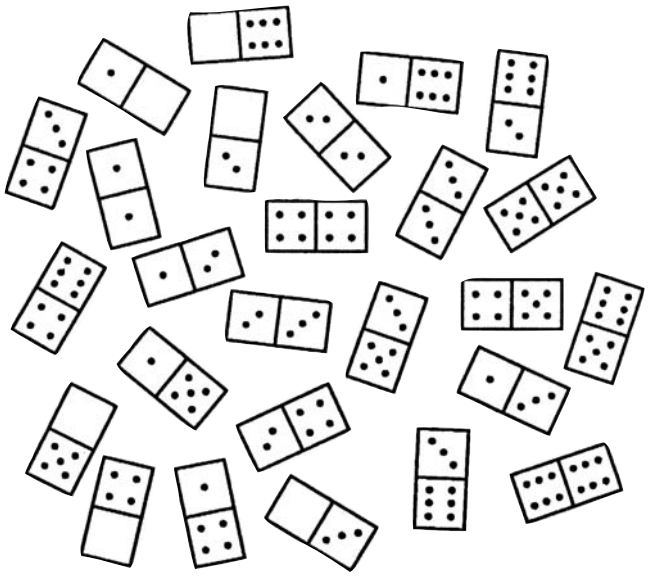
33 Which is the second smallest circle and which is the second largest circle?



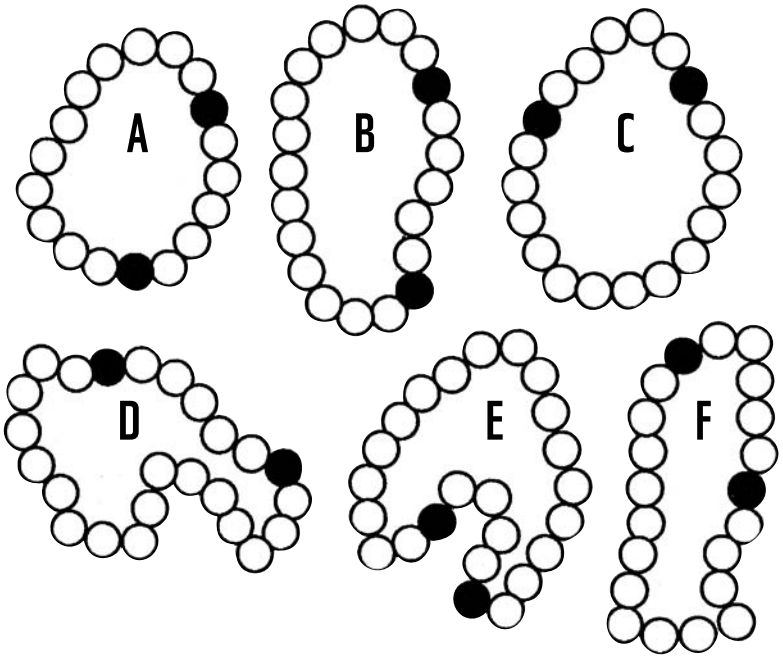
34 A feature of many safe-driving competitions consists of a row of poles set at varying distances from each other, ranging from narrow to wide. Maximum points are scored if the driver chooses the narrowest gap through which he can drive without touching a pole. Thus, the driver must relate the width of his car to the width between the poles. Drivers A and B below are competing here. Which gap should each driver choose?



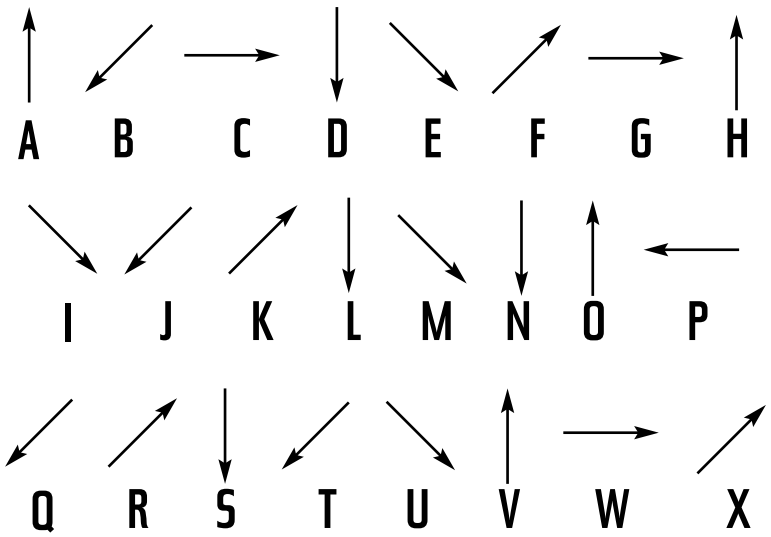
35 Which two dominoes are missing from the set?



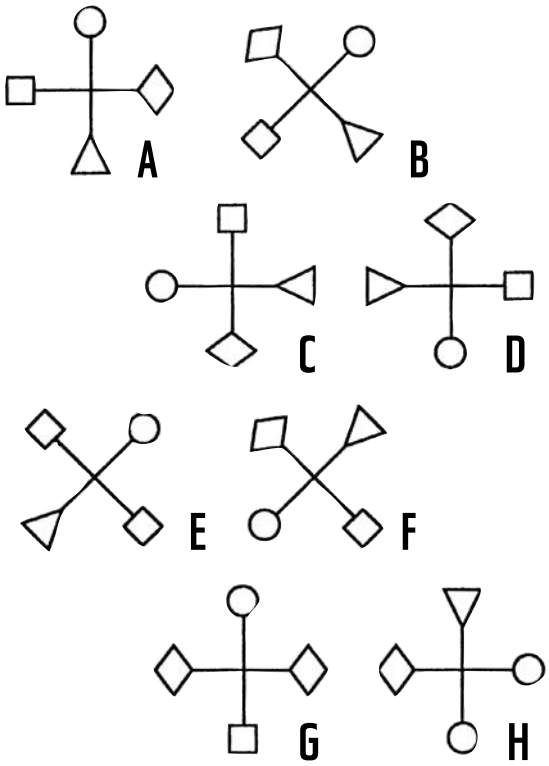
36 Which string of beads is the odd one out?



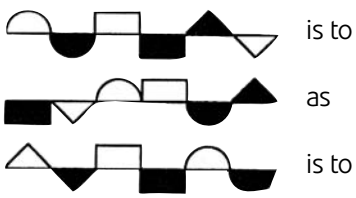
37 Which is the odd one out?



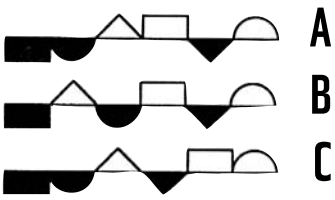
38 Which of these designs match each other?



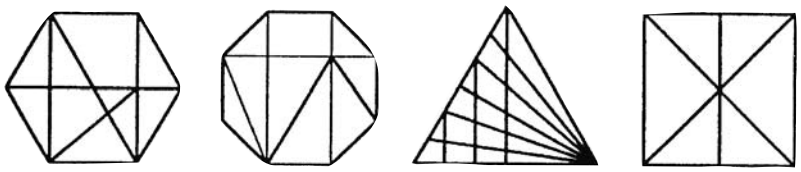
39



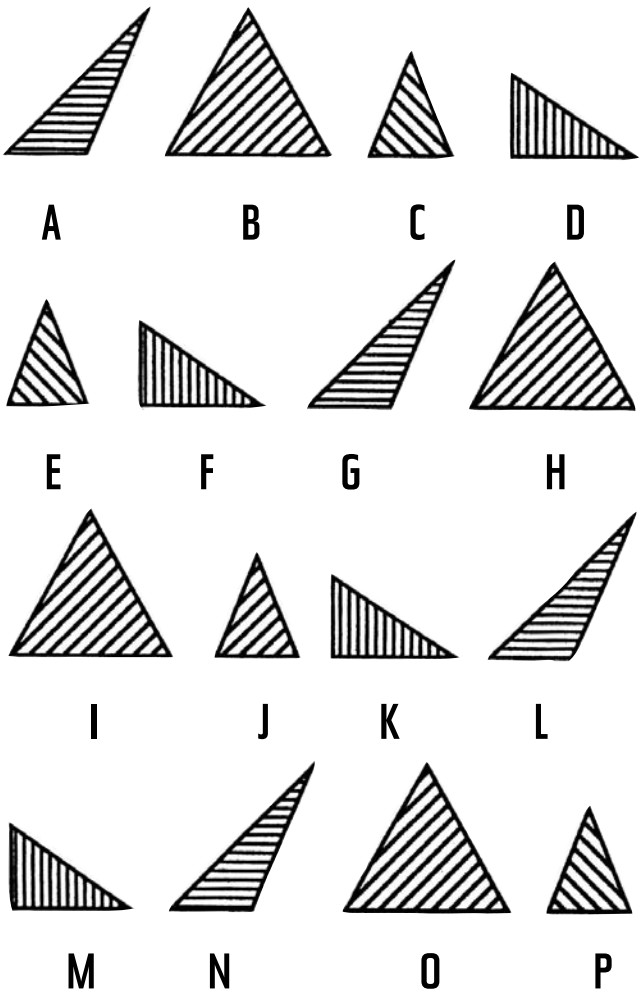
Choose from A, B or C



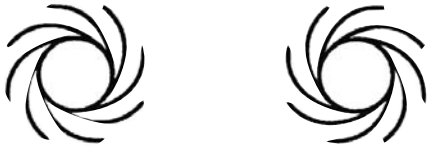
40 Which of these contains the greatest number of triangles?

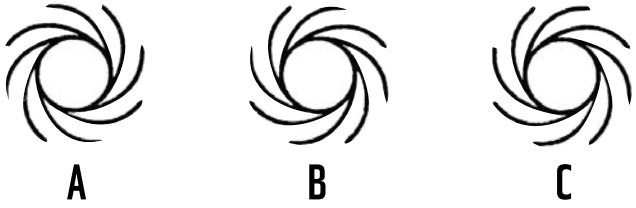


41 Which triangle is the odd one out?

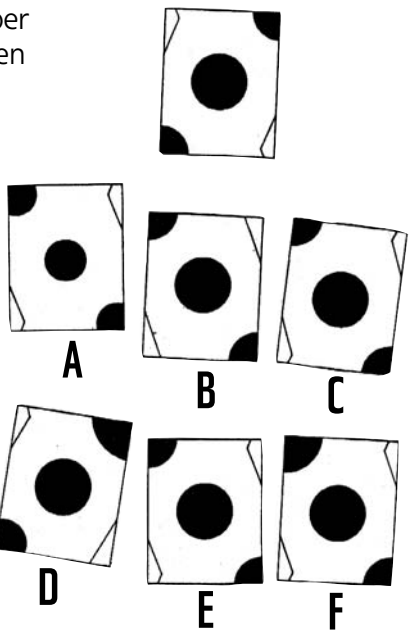


42 If the two spirals at the top are correct, which, if any, of those below are wrong?

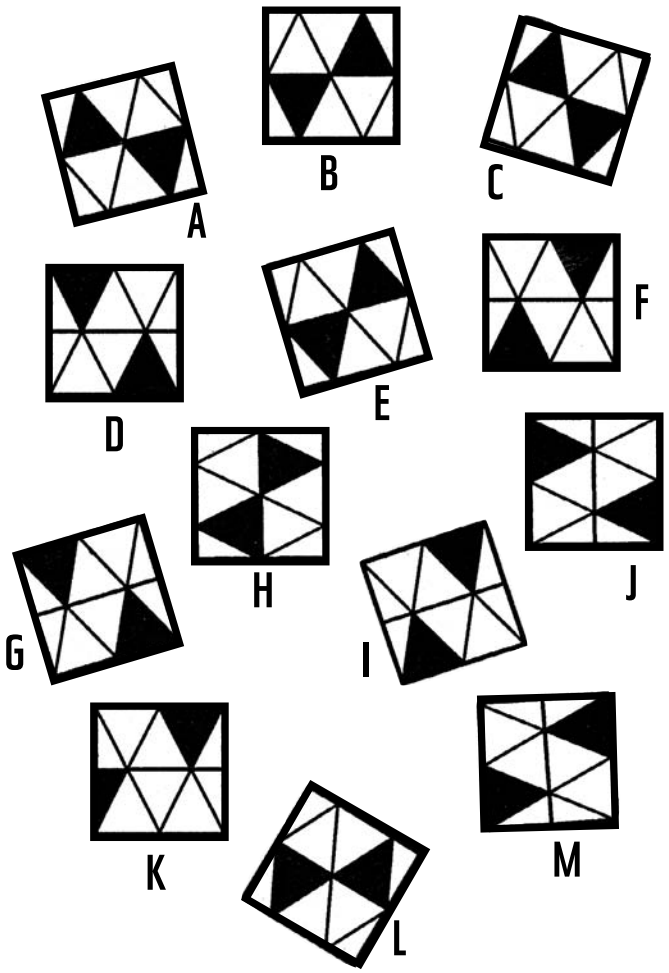




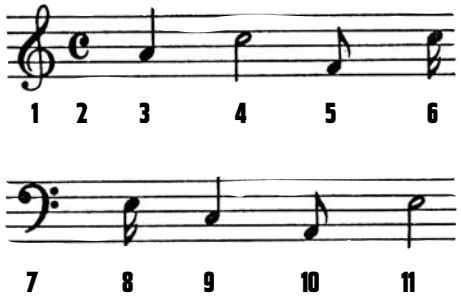
43 The shape of wallpaper at the top has already been hung. Which two of the sheets below will exactly match it when pasted on each side of it?



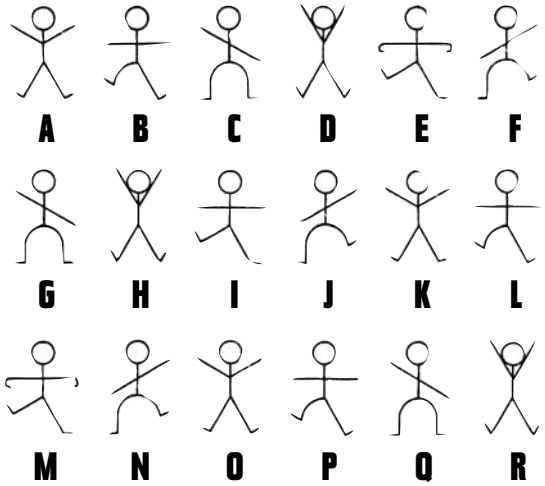
44 Match these patterns into four groups of three and state which is the odd one out.



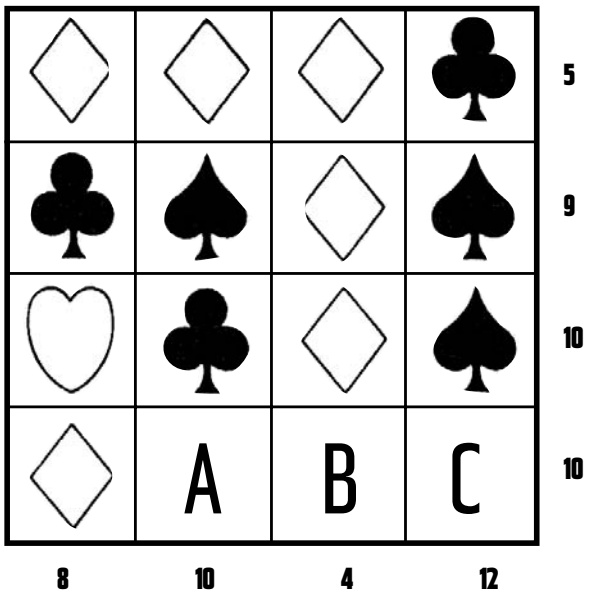
45 Which is the odd one out?



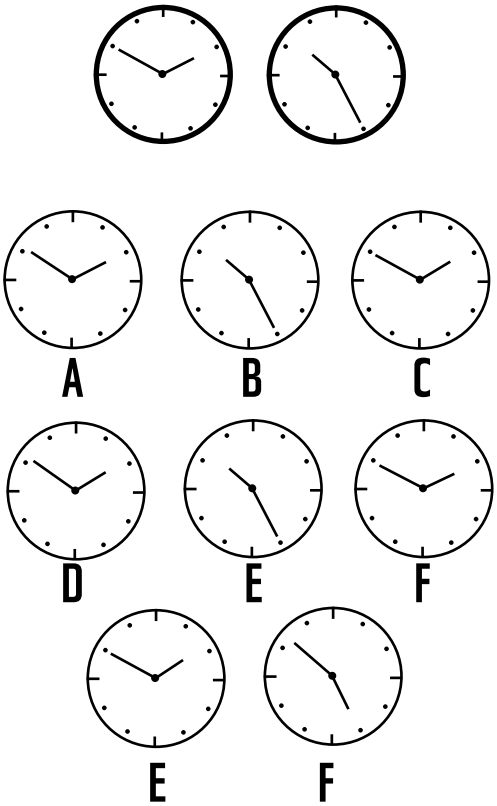
46 Which of these matchstick men is the odd man out?



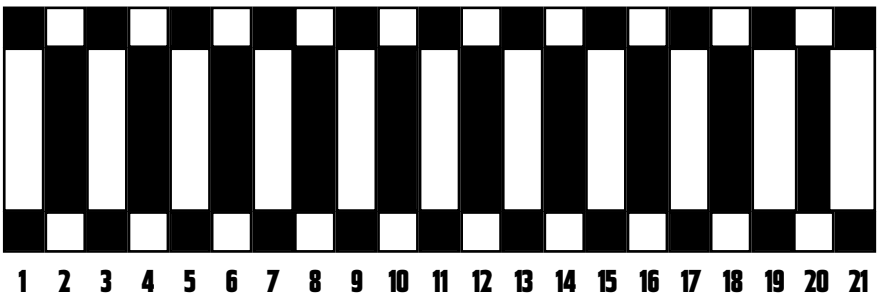
47 What are A, B and C?



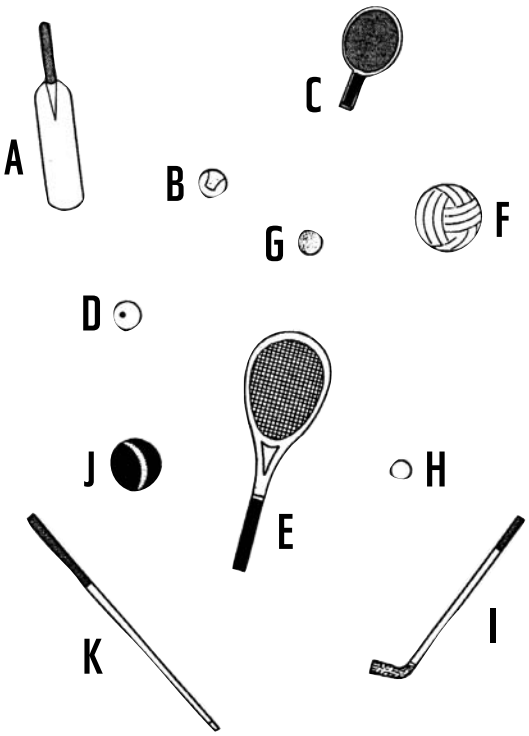
48 If the top clocks are right, which of those below are wrong?



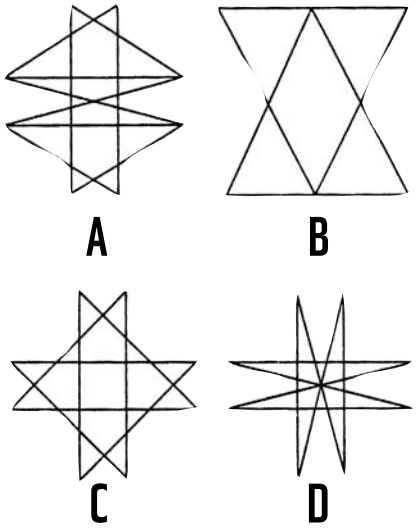
49 Which one spoils the pattern?



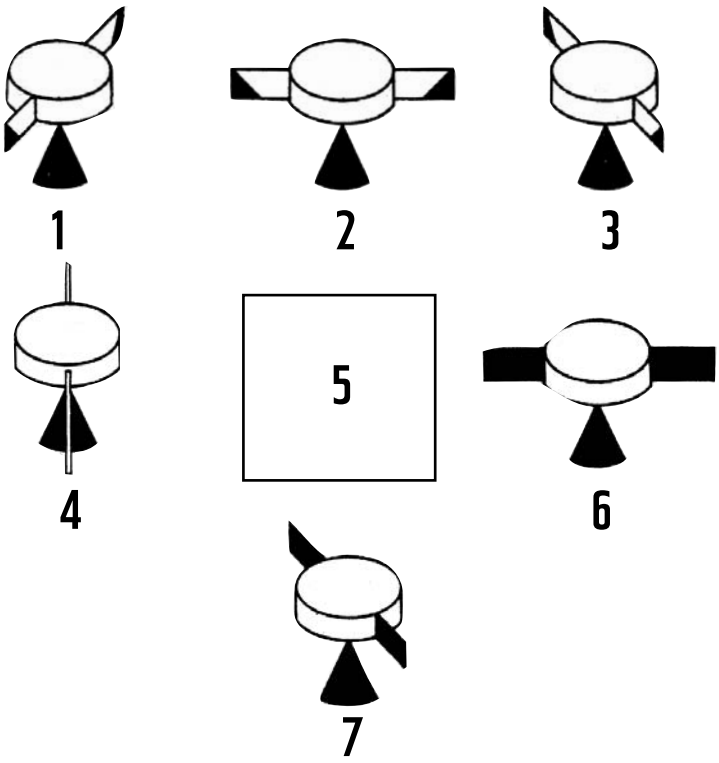
50 Which is the odd one out?

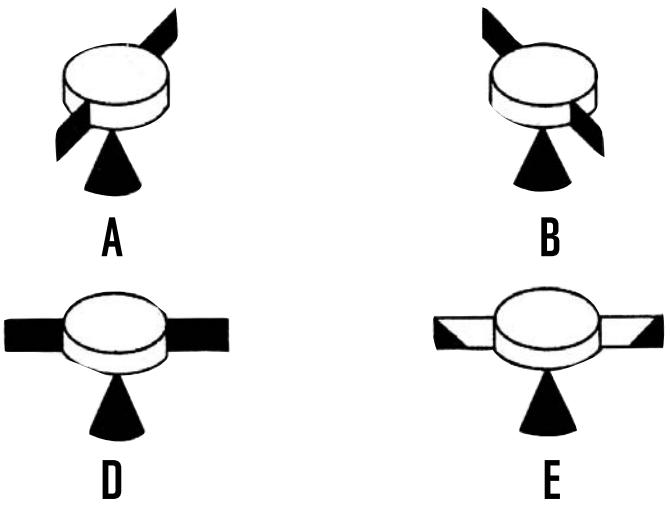


51 Which of these outlines, if any, can be drawn without removing pen from paper, crossing a line, or retracing a line?



52 Which of those at the bottom takes the place of number 5?

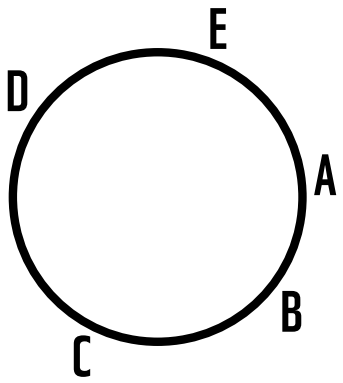




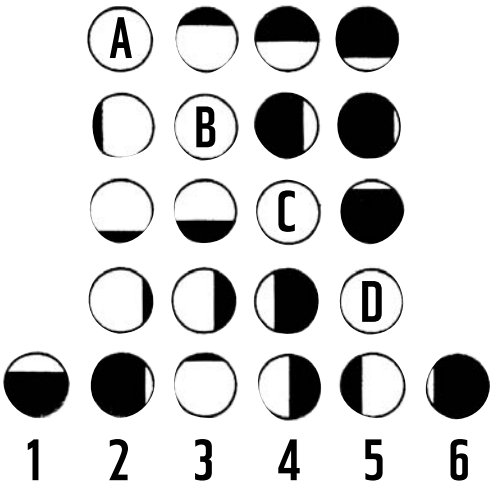
53 Tom, Alf, Fred, Bill and Jim sat at a round table.

Alf sat on Fred's left;
Tom sat on Jims's right;
Bill sat on Alf's left.

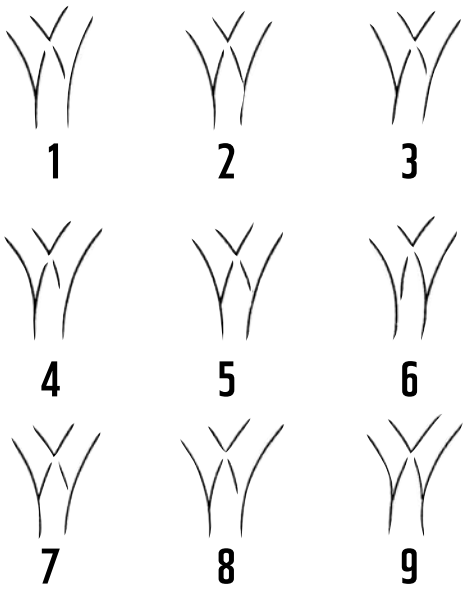
If Alf sat at A (see below), where were the others seated?



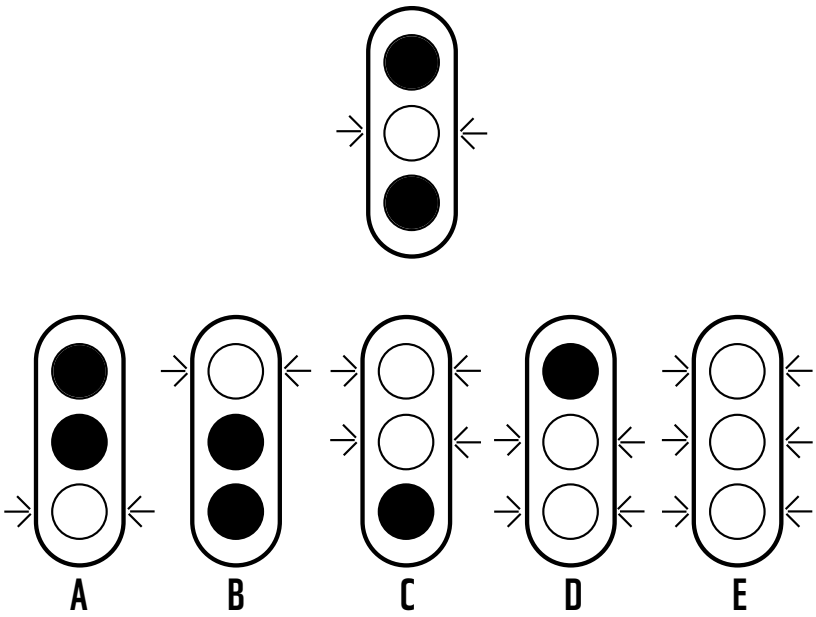
54 Which of the numbered circles belong to A, B, C and D?



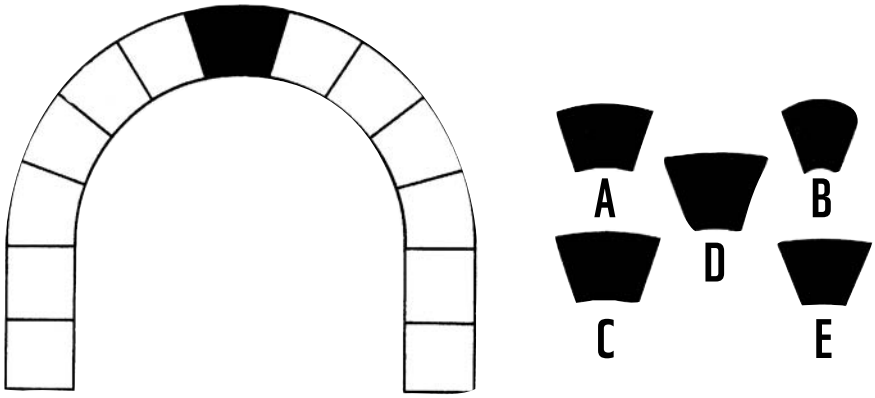
55 Eight of these railway points are set for the up train. Which will let the down-train through?



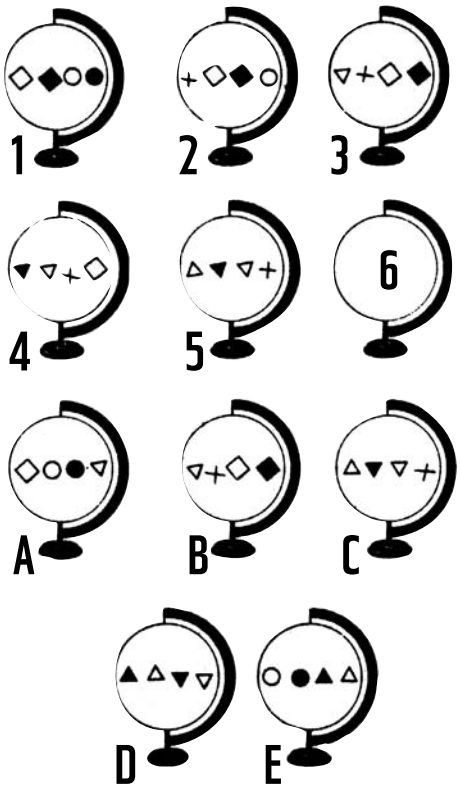
56 What comes next after the top traffic light?



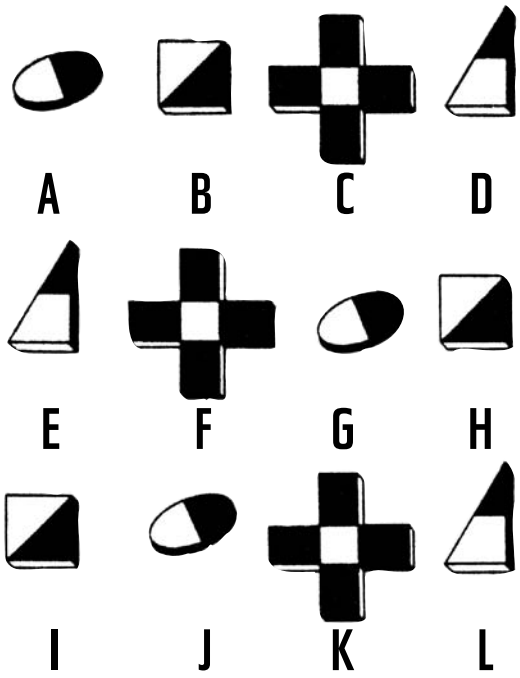
57 Which is the missing keystone?



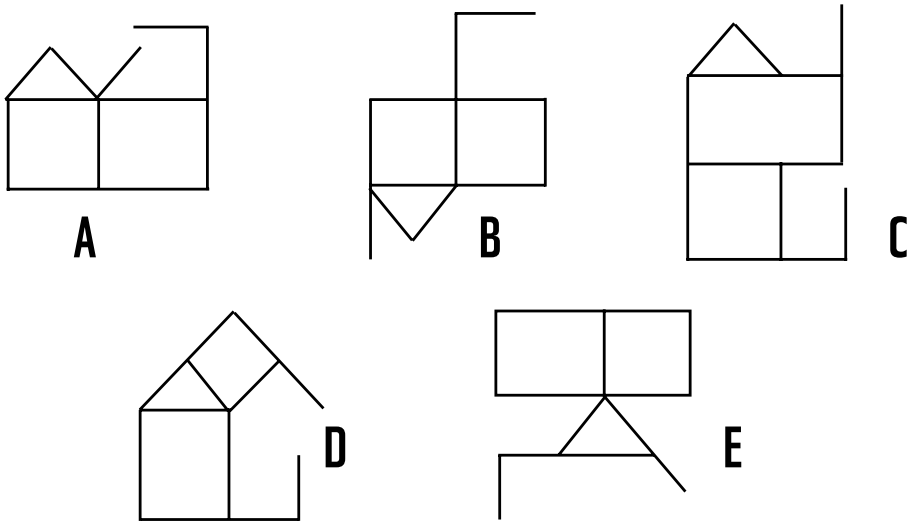
58 Which globe at the bottom belongs to number 6?



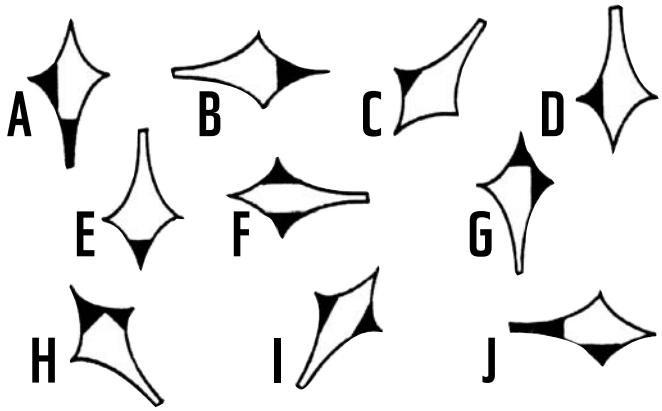
59 Which one is wrong?



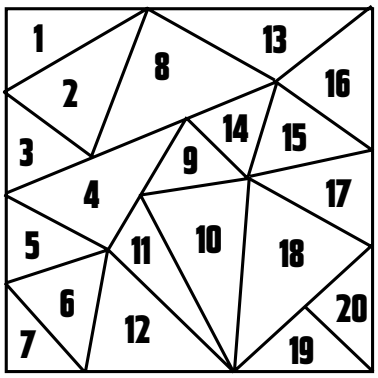
60 Which design is the odd one out?

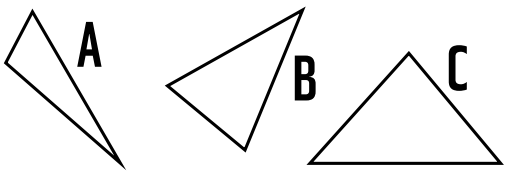


61 Arrange these into five pairs.

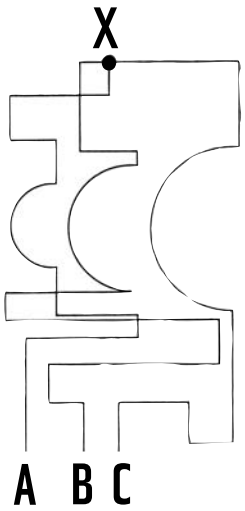


62 Match the three triangles at the bottom with their numbered counterparts in this square.

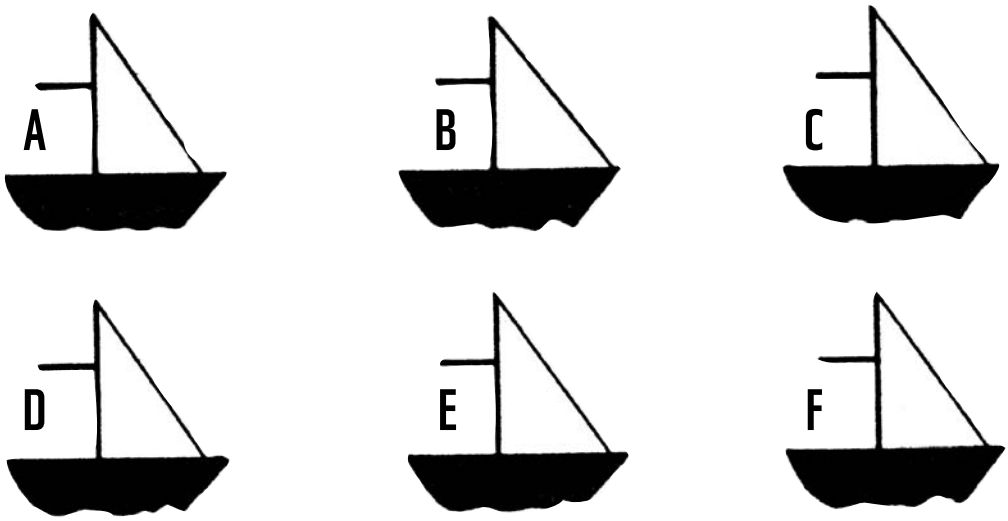




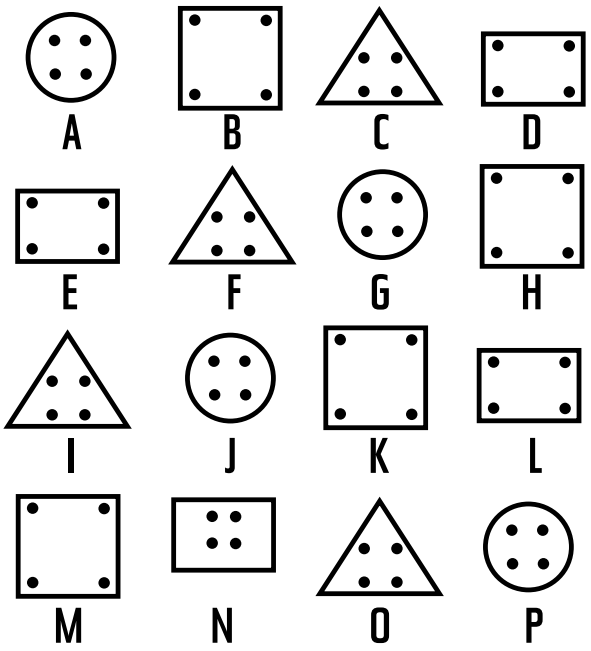
63 Which is the shortest and which is the longest route to X?



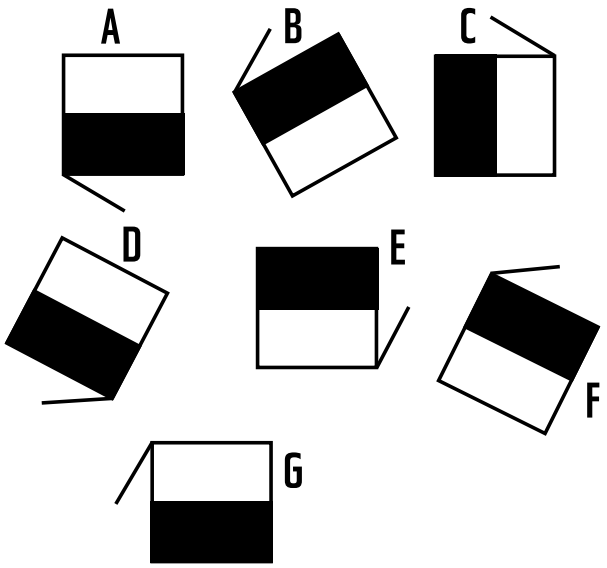
64 Which yacht is the odd one out?



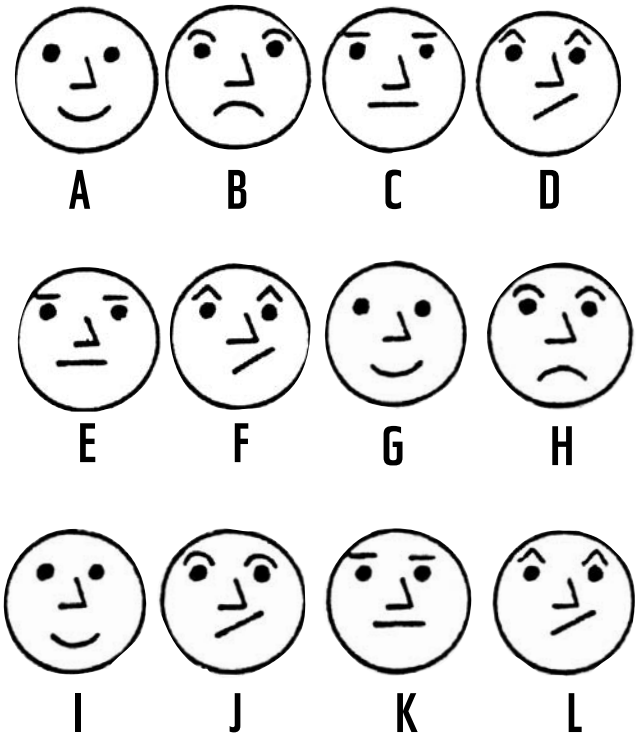
65 Which one does not agree with its counterparts?



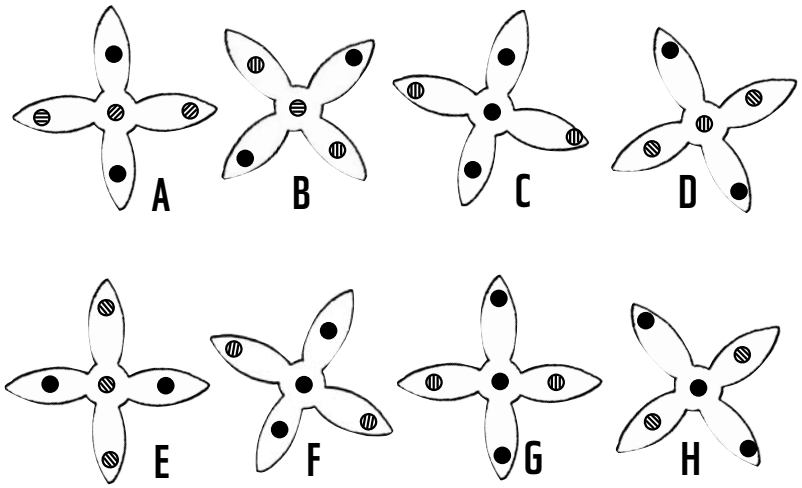
66 Which of these figures is wrong?



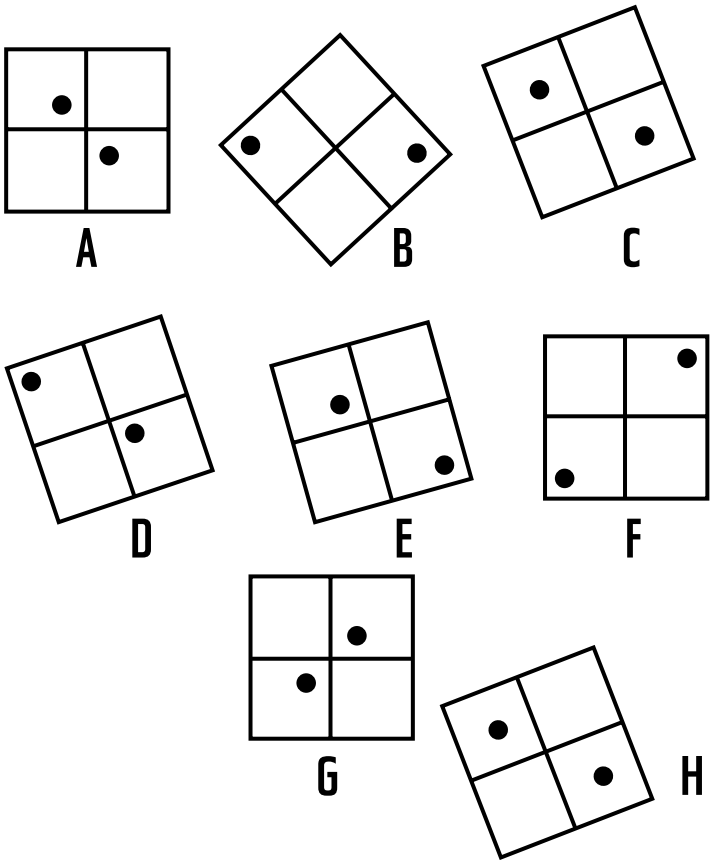
67 Who has changed his expression?



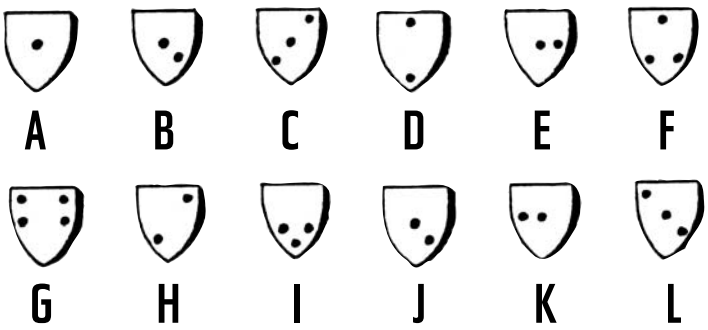
68 Arrange these patterns into four pairs.



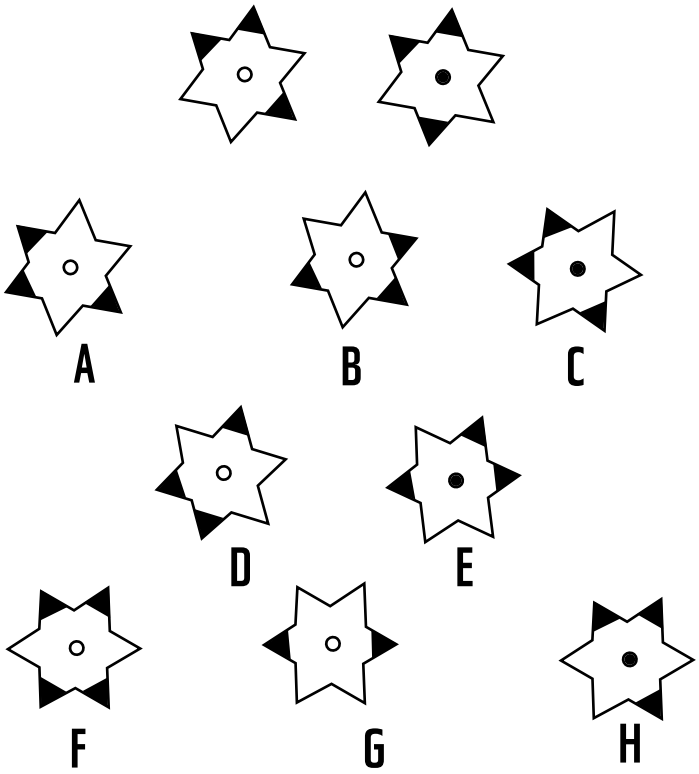
69 Arrange these into four pairs.



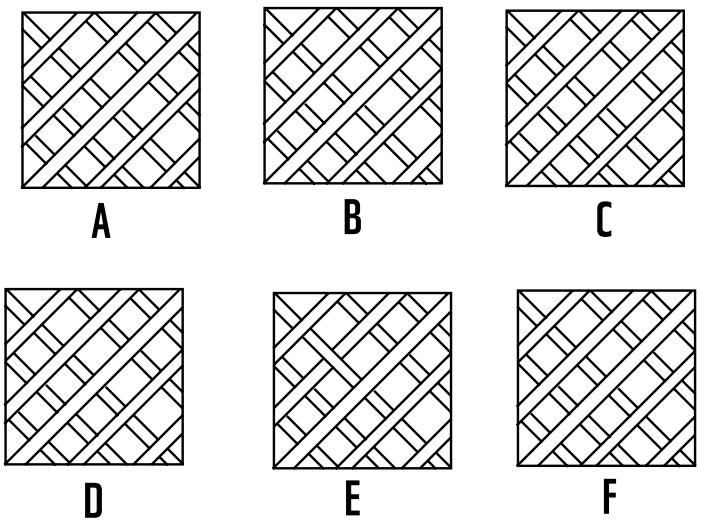
70 Which two of these shields are identical?

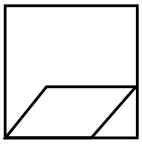


71 Assuming that the two top stars are correct, which of those below are wrong?



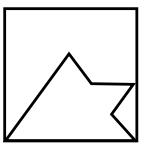
72 What trellis is wrong?



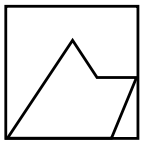
73 If  is superimposed on 

Which of the OUTLINES below will result?

A



B

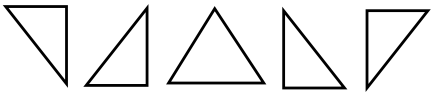


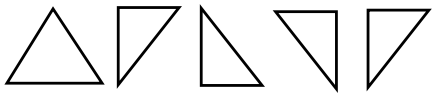
C

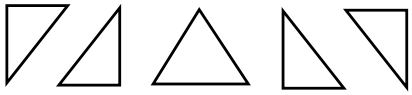
D

74 Which row is wrong?

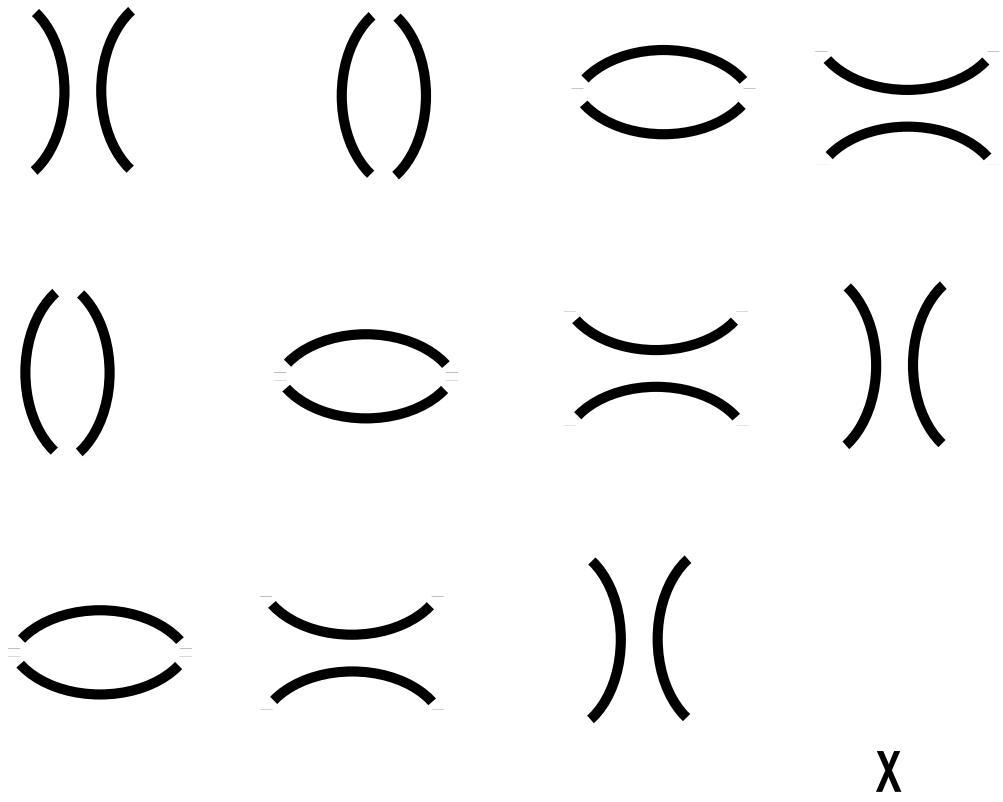
A 

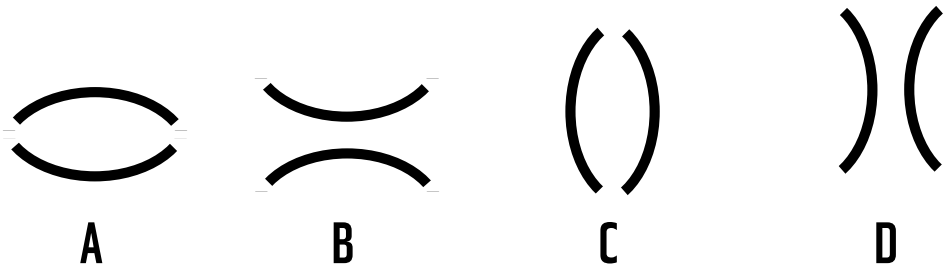
B 

C 

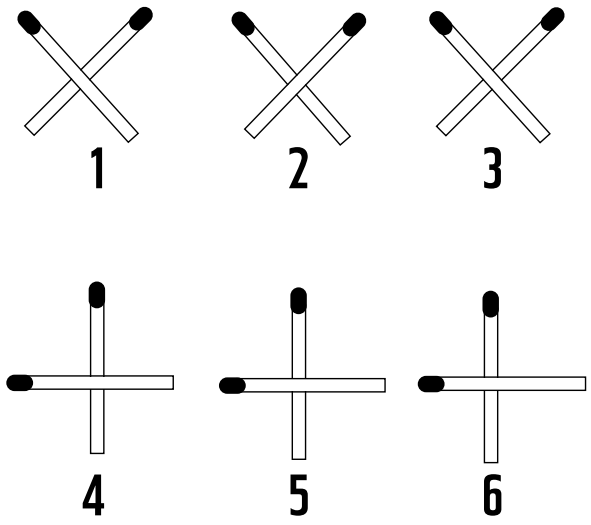
D 

75 Which of the symbols at the bottom should take the place of X?

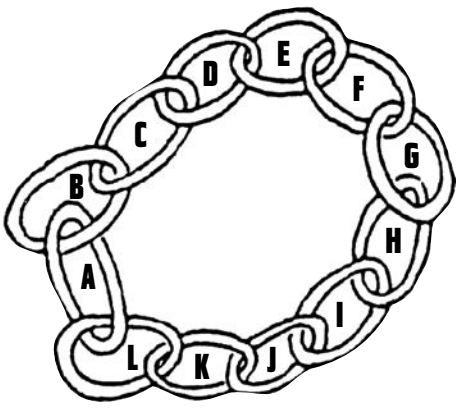




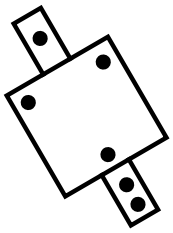
76 Which cross does not conform with the others?



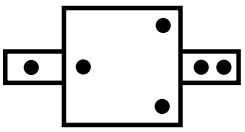
77 Which are the weak links?



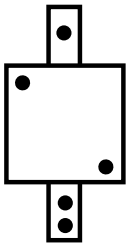
78 Arrange these into six pairs:



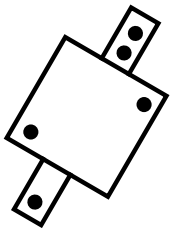
A



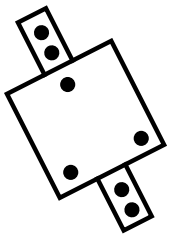
B



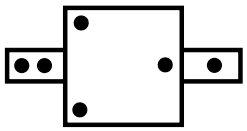
C



D



E



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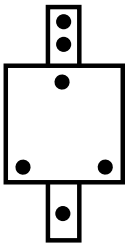

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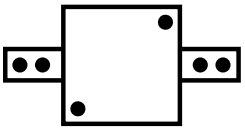

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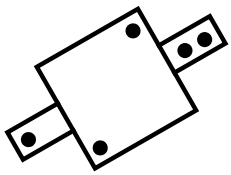

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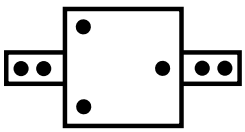

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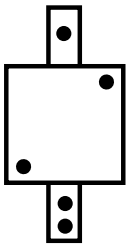

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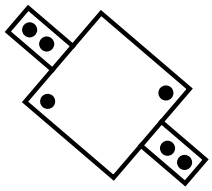


L

Answers

1 D
The bottom figure is below the higher figure.

2 E is nearest, A is furthest away.

3 2 revolutions clockwise
C (24 teeth) rotates 4 revolutions. Therefore D also rotates 4 revolutions. Pulley B has twice the circumference of pulley D and so will rotate 2 revolutions. C rotates clockwise, as B does not change the direction of C. Pulleys D and E also rotate clockwise.

4 B
A contains 7 triangles
B contains 11 triangles
C contains 10 triangles
D contains 6 triangles

5 25

6 E
The knob is on the wrong side.

7 40

8 E
The design consists of the letter S repeated 10 times, but in E one of them is the wrong way round.

9 A-C, B-F, D-G, E-H

10 C
VIII has taken place of VII.

11 G
All the others can be paired A-J, B-E, C-L, D-N, F-I, H-K and M-O

12 B
The two strands should pass over and under each other alternately, as in the other examples.

13 D
They all rotate clockwise, first to the next vane, then missing one, then two and so on.

14 H
The centre stroke is shorter.

15 21
There are 15 small hexagons and 6 large ones. The last shape in the bottom row is a pentagon.

16 N
There are two black balls instead of one white and one black.

17 D
Apart from D, each row contains one figure with one stroke, one with two strokes, one with three strokes, one with four strokes and one with five strokes. In row D there are two figures with four strokes and none with five strokes.

18 C
A, B and D all contain two circles, two squares, two straight lines and two triangles. In C there is only one triangle.

19 B
The figure is rotating clockwise.

20 C
The figures are transposed in the same way as in the example at the top.

21 3 – C
Line 1 finishes at 2, and line 2 finishes at 1.

22 A - F, B - C, D - G and E - H

23 17 is the smallest segment; 14 is the largest segment

24 A

25 K, which is longer.

26 F
Stripes go the opposite way when reflected in a mirror.

27 D
B is too big, A and C are too small.

28 42
There are 5 diamonds made with 9 squares, 12 diamonds made with 4 squares, and 25 diamonds made with 1 square.

29 B
The position of the spots is repeated in every 4th sector.

30 B

31 Glass sign on glass door
PULL on one side
PUSH on opposite side

32 A–D, B–L, C–H, E–G, F–J and I–K

33 I is the second smallest. F is the second largest

34 A 4, B 8

35 0–0 and 5–2

36 E
In E there are 4 white beads between the two black beads. In the others there are 5.

37 P
It is the only arrow pointing to the left.

38 A and F

39 A

40 A

41 J
It should be the same as C, E and P.

42 E
There are only 7 off-shoots from the centre, instead of 8, as in all the others.

43 C and E
C goes on the right side of the piece already hung; E goes on the left side.

44 A–C–H, B–E–L, D–G–M and F–I–J; K is the odd one out.

45 1 and 7 are clefs– the G, or treble, clef, and the F, or bass, clef (indicating musical pitch). 3 and 9 are crotchets; 4 and 11 are minims; 5 and 10 are quavers; 6 and 8 are semi-quavers (all musical notes). 2 is a musical time signature, in this case indicating 'common' or 4/4 time. As it has no counterpart, it is the odd one out.

46 I
This man has no hands, as seen on his counterpart – E and M.

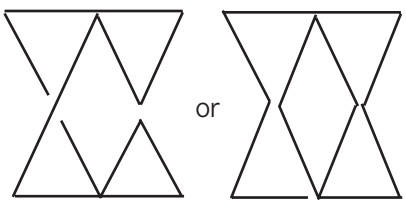
47 A is a heart, B is a diamond, C is a heart.
By simple elimination the following emerges:
a diamond is 1 (see third vertical column)
a club is 2
a spade is 3
a heart is 4

48 E and H
In both cases the minute and the hour hands have changed places.

49 20
The black stripe is too narrow

50 F
There are 5 related pairs:
A (cricket bat) with J (cricket ball)
B (tennis ball) with E (tennis racquet)
C (table tennis bat) with H (table tennis ball)
D (billiards ball) with K (billiards cue)
G (golf ball) with I (golf club)
F (football) is on its own

51 B



52 A
The figure is rotating clockwise, 45 degrees at a time. 6 and 7 indicate that the vane is shaded entirely on its blind side as compared with 1, 2 and 3.

53 b (BILL); c (TOM); d (JIM); e (FRED)

54 A3, B5, C1, D6
In the first line the shading moves from top to bottom.
In the second line it moves from left to right.
In the third line it moves from bottom to top.
In the fourth line it moves from right to left.

55 6

56 B
From top to bottom, traffic lights are coloured red, amber and green. They change as follows: red and amber together – green – amber alone – red. As the amber light is showing, it will be followed by the red (B).

57 C

58 D
Examination of the previous globes shows that the globe is rotating left to right.

59 F
The right edge of the horizontal line forming the cross should not be shaded, as compared with C and K.

60 B
Other than in B, the designs are made up with a square, a triangle, a rectangle, a right angle and a line. In B, there are two squares but no rectangle.

61 AJ; BE; CD; GH; FI

62 A11; B2; C8

63 C is the shortest route; B is the longest route
The curves may have misled you, since it might appear that the biggest curve – in C – gives the longest route. In fact, the curves are semicircles, the length of which is estimated on the formula of 3.14 approx, multiplied by the radius.

64 B
The mast is too far forward.

65 N
The dots in the rectangle are too close together as compared with those in the other rectangles – D, E and L.

66 A
When the diagonal line from the base-line of the square inclines to the right, as in C, E and G, the right half of the square is black.
When it inclines to the left as in B, D and F, the bottom half of the square is black.
In A the right half of the square should be black.

67 J
The mouth should be as in B and H.

68 AE, BD, CG, FH.

69 AG, BF, CH, DE.

70 B and J.

71 F and G.

72 E
The diagonal slat from the top left to bottom right should pass under the other slats.

73 B

74 C
Except for C, each row contains 1 equilateral triangle, 2 right-angled triangles with the base at the bottom and 2 with the base at the top. In C, there are 3 right-angled triangles with the base at the top and only 1 with the base at the bottom.

75 C
In each row the first symbol is the same as the second in the previous row and the other symbols continue in the same order.

76 2
When the head of the match points to the left, that match should lie on top of the other match. In 2 it lies underneath.

77 G and H

78 AG, CI, BF, DK, EJ, HL

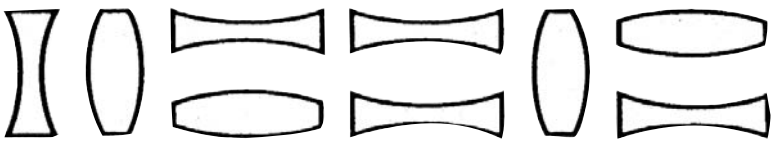
Word Puzzles

1 In a game of whist, GEORGE partnered MARY, while TED had to select a partner from ANN, EDNA, JOAN or ANGELA. Whom did he choose?

2 Which of the following statements are true and which are false?

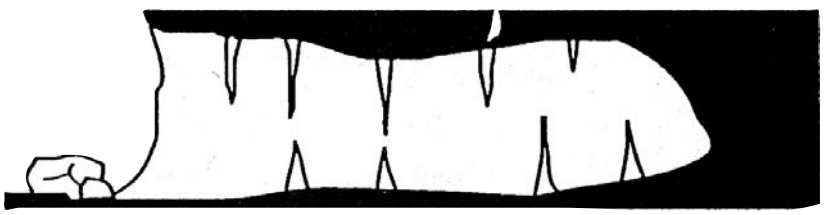
A. If this clock is gaining, the pendulum weight should be moved downwards.

B. The majority of these shapes are convex.



C. A spider has six legs.

D. The majority of these are stalagmites.



3 The Barber of Seville shaves all of the men living in Seville.
No man living in Seville is allowed by law to shave himself.
The Barber of Seville lives in Seville.

Who shaves the Barber of Seville?

4 Here are two lists of words.

List A, each word has two possible pair words in List B.

List B, each word has two possible pair words in List A.

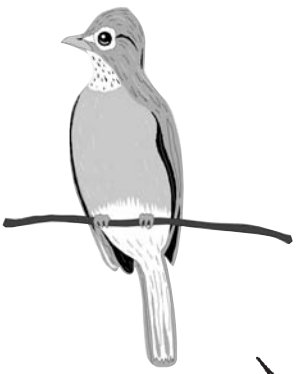
There are two possible solutions.

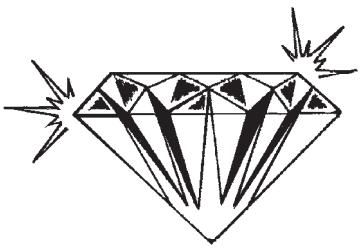
Pair a word from each list until you have 10 pairs.

List A	List B
SEVERN	TRACTOR
ARROW	RIVER
TURRET	BULLS-EYE
FARM	BOW
YARBOROUGH	TANK
SAND	CARDS
YEW	CASTLE
VEHICLE	BANK
RIPARIAN	WOOD
JACK	BRIDGE

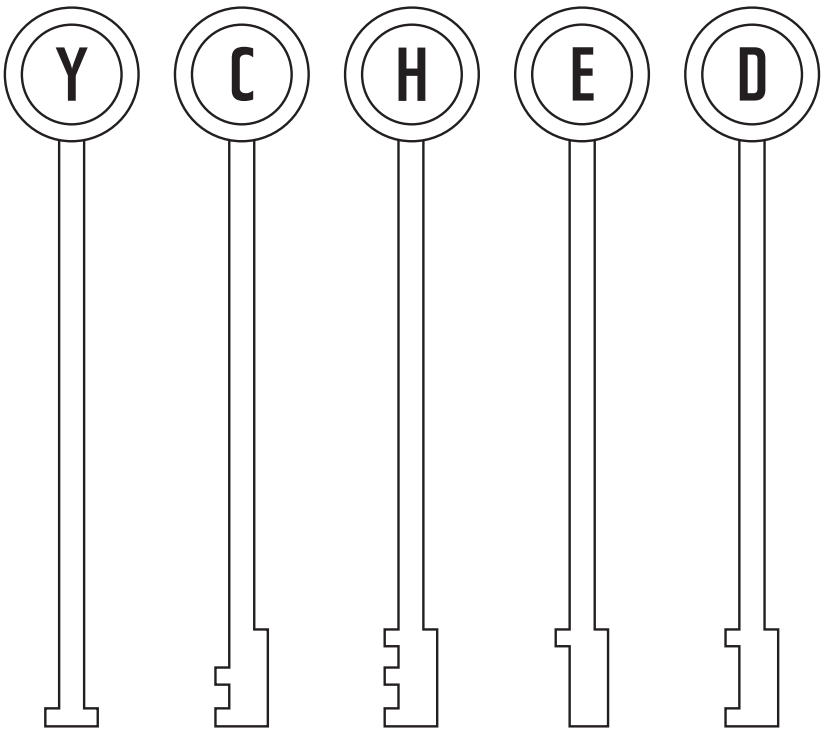
5 Arrange the following female names and male names into groups of three:

OLIVE	**ISABEL**
PRIMROSE	**MYRTLE**
GARNET	**DIAMOND**
PEARL	**SANDY**
MARTIN	**MAVIS**
ROBIN	**POPPY**





6 The safe can only be opened by using the keys in the correct order that spells out a word. What is that word? Every key must be used just once.



7 All of the vowels have been omitted from this saying. Put them back to produce the saying.

FTFRST YDNT SCCD TRYTRY

GNTHNQTT HRSNSNS BN

GDMNF LBTT

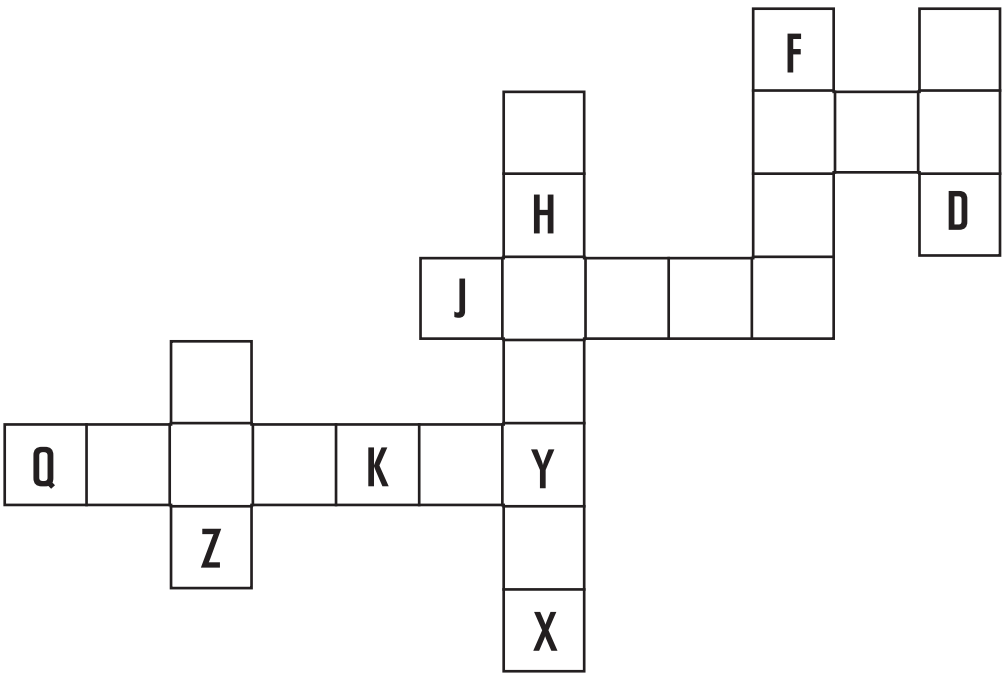
8 What is two days after the day after the day before yesterday?

9

Clue: Hanging about over the water? (10-6)

Find the (10-6) letter word. Find the 1st letter. Draw a straight line to the 2nd letter, then to the 3rd letter and so on. The enclosed areas have been filled in.

10 Place all of the letters of the alphabet in the grid to make a x-word. 9 letters have been placed for you.



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

11 Arrange these shapes in order according to the number of sides, starting with the one with the least number:

A OCTAGON

B HEXAGON

C PENTAGON

D DECAGON

E TETRAGON

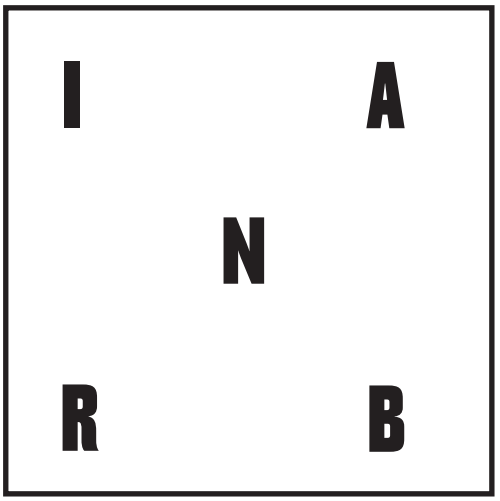
F NONAGON

G HEPTAGON

12 For his latest creation Frankenstein takes half of CONNIE, part of NESTA, part of NELLIE, and part of AUNTIE.

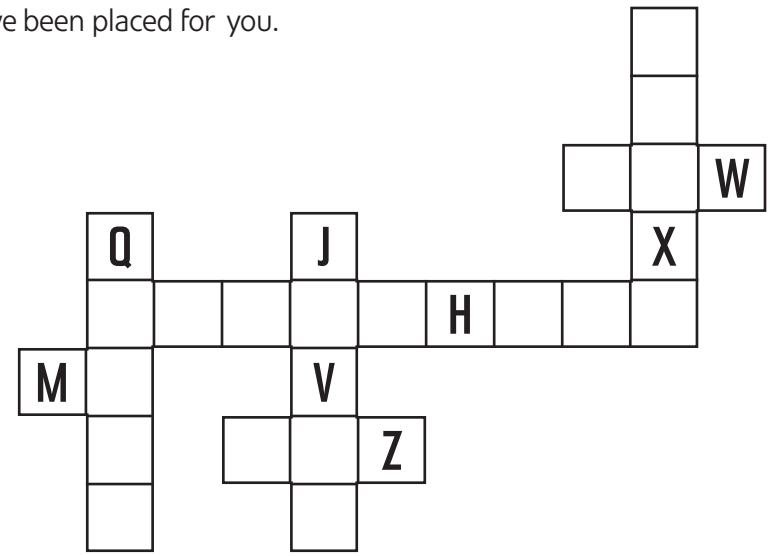
What does Frankenstein call his creation?

13 Solve the following rebus.



14 Place all of the letters of the alphabet in the grid to make a crossword.

8 letters have been placed for you.

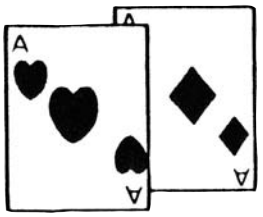


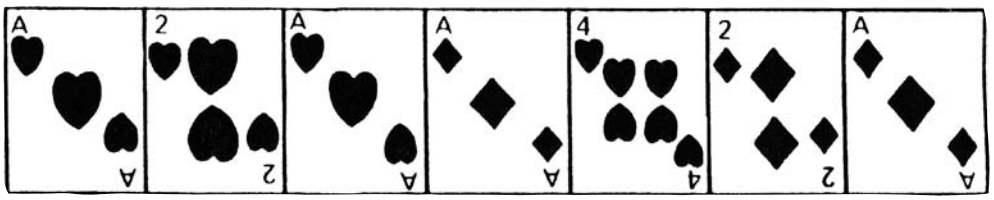
15

Clue: You need this to run before the wind. (9)

Find the (9) letter word. Find the 1st letter. Draw a straight line to the 2nd letter, then to the 3rd letter and so on. The enclosed areas have been filled in.

16 What word is represented by the seven cards at the bottom?





17 Which row is the odd one out?

A.	**K**	**N**	**Q**	**T**	**W**	**Z**
B.	**B**	**F**	**J**	**N**	**R**	**V**
C.	**A**	**F**	**K**	**P**	**V**	**Z**
D.	**3**	**6**	**9**	**12**	**15**	**18**
E.	**7**	**11**	**15**	**19**	**23**	**27**
F.	**13**	**18**	**23**	**28**	**33**	**38**

18 Replace the letters with numbers.

```
   COPS
  CLOSE
 CELLAR
CORPSE
   CASE
+ COLLAR
 RECTOR
```

19 Replace the letters with numbers.

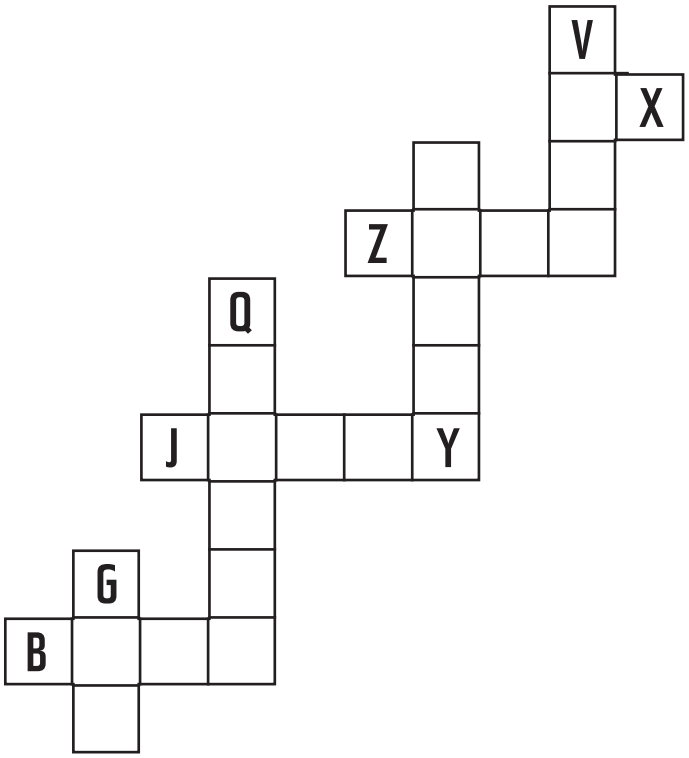
```
   TWELVE
   TWELVE
   TWELVE
   TWELVE
   TWELVE
+ THIRTY
 NINETY
```

20

Clue: Spindrift skimmers! (4-7)

Find the (4-7) letter words. Find the 1st letter. Draw a straight line to the 2nd letter, then to the 3rd letter and so on. The enclosed areas have been filled in.

21 Place the 26 letters of the alphabet in the grid to make a crossword. 8 letters have already been placed.



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

22 What are X and Y?

S	20
8	J
W	25
16	T
A	4
5	K
C	7
X	L
A	Y
4	N

23 Solve the rebus.

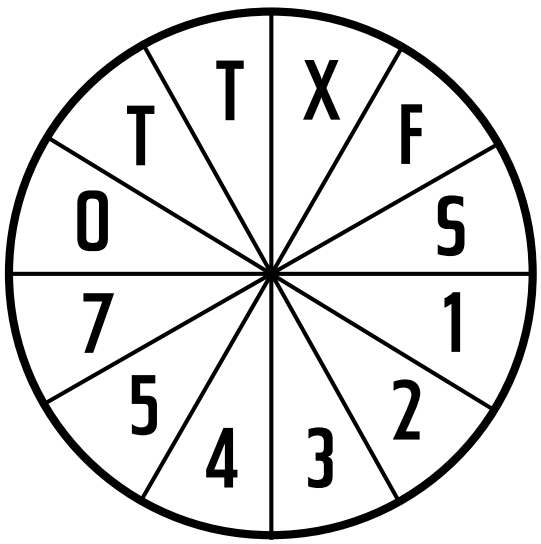
NILE

HO HO HO

24 Pair these words to make nine titles of books by Charles Dickens:

A	LITTLE	1	RUDGE
B	PICKWICK	2	COPPERFIELD
C	EDWIN	3	TIMES
D	BARNABY	4	CHUZZLEWIT
E	NICHOLAS	5	PAPERS
F	HARD	6	HOUSE
G	BLEAK	7	DROOD
H	DAVID	8	DORRIT
I	MARTIN	9	NICKLEBY

25 What is X?



26 These are the recognised names given to groups of creatures, but they have been mixed up. You have to re-arrange them correctly.

Colony of Birds

Horde of Spiders

Den of Wild Pigs

Clutter of Crows

Nest of Snakes

Park of Elks

Doylt of Ferrets

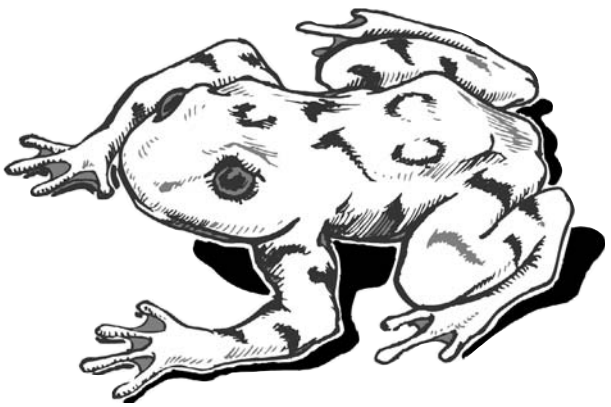
Gang of Machine Guns

Business of Swine

Volery of Artillery

Hover of Gnats

Drift of Frogs



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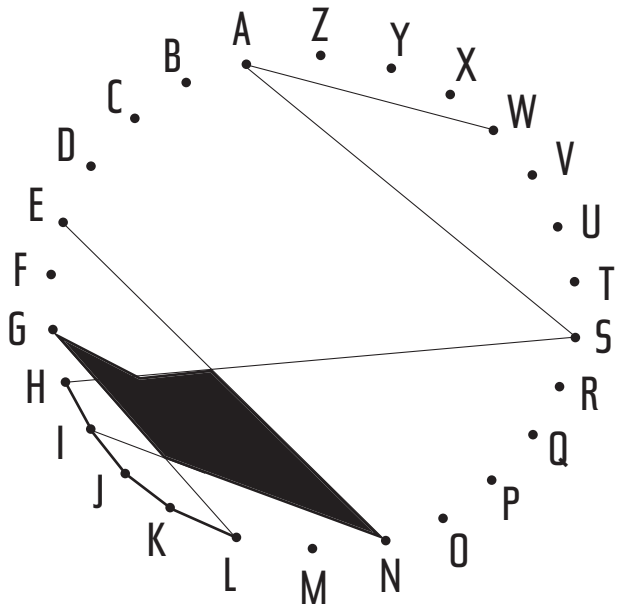
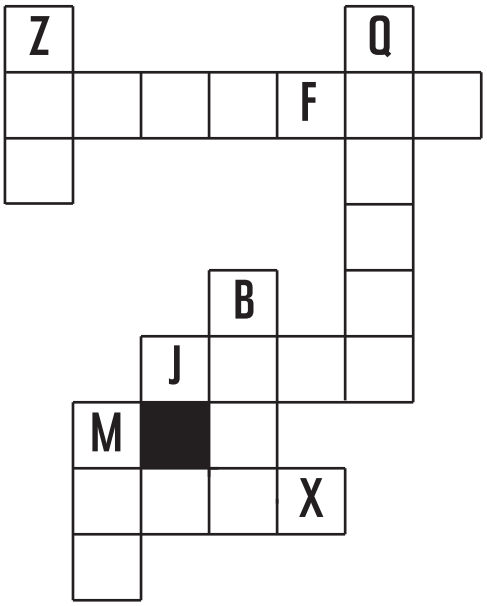


Clue: Place where the duds hang out? (7-4)

Find the (7-4) letter words. Find the 1st letter. Draw a straight line to the 2nd letter, then to the 3rd letter and so on. The enclosed areas have been filled in.

28 Place the 26 letters of the alphabet into the grid to make a x-word.

7 letters have already been placed for you.



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

29 These names of groups of objects have been mixed up. Your task is to re-arrange them.

STALK	of	HUNTERS
BUILDING	of	SWANS
CLOUD	of	MAGPIES
SKULK	of	FORESTERS
COVERT	of	LAPWING
HERD	of	BAGDGERS
CONVOCATION	of	FRIARS
SORD	of	COOTS
BLAST	of	ROOKS
DESERT	of	MALLARD
TIDING	of	EAGLES
COLONY	of	SEAFOWL
NIDE	of	PHEASANT

30 Guess the catchphrase:

ANOTHER 1
ANOTHER 1
ANOTHER 1
ANOTHER 1
ANOTHER 1
ANOTHER 1

31 The Pharoah asked: "Who is the greatest of the gods?"
'I am not" said Horus.
"Anubis is" said Isis.
"Isis is lying", said Anubis.
Only one god was telling the truth, the other two were lying.
Who is the greatest?

32 Can you discover six male forenames in the outer ring and six female names in the inner ring?

33 Magic Squares can be very intriguing, whether they use number in which each line, column and diagonal adds up to the same number, or whether they use words. Usually a magic word square consists of a number of different words which can be read both across and down as in the example:

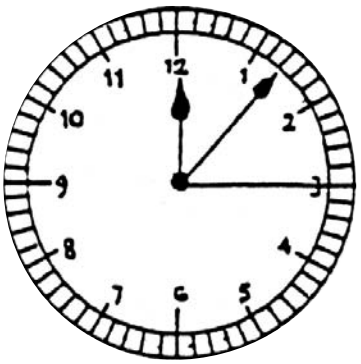
K	I	N	D
I	D	E	A
N	E	A	T
D	A	T	A

However, below is a magic word square with a difference.

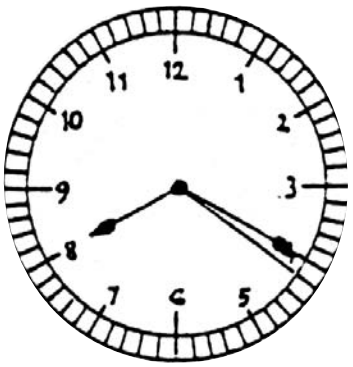
Can you fill in the three missing letters so that this is, indeed, a magic word square?

S		I	D
E	I	O	I
R		N	G
P	A		I

34 What does the third clock show?



LOG



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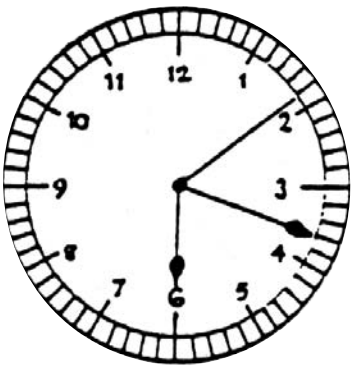


35 A colour is concealed in each of these sentences:

A Temper or anger are signs of weakness.

B The money is for Edward.

C You'll find I got it elsewhere.

D One dancer, I see, is out of step.

E 'I'm a gent and a lady's man,' he said.

36 At the scene of a heinous crime, five suspects, one of whom is the guilty party, are being interrogated by a detective. Each of the suspects gives one statement and it later transpires that just three of these statements are correct.

These are the statements:

Uncle Jack : Uncle Jim committed the murder
Aunt Mary : I did not do it
Cousin Stewart : It was not Cousin Margaret
Uncle Jim : Uncle Jack is lying when he says I did it
Cousin Margaret : Aunt Mary is telling the truth

Who committed the murder?

37 Which of these statements are true and which are false?

A. When a car is driven forwards the wheels rotate anti-clockwise.

B. If a clock is put forward $1\frac{1}{4}$ hours the minute hand moves through 450^{0}.

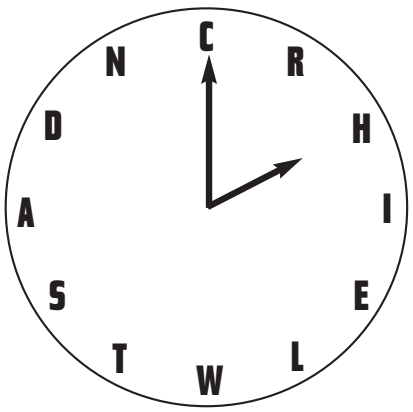
C. When a clock reads 4.10 the acute angle between the hands is exactly 60^{0}.

38 What will be the result if the hands of this clock are moved as follows:

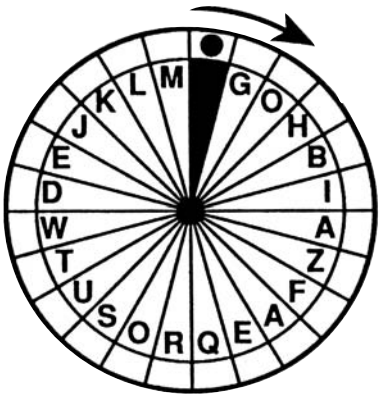
A. forward 3 hours, 15 minutes

B. back 4 hours, 25 minutes

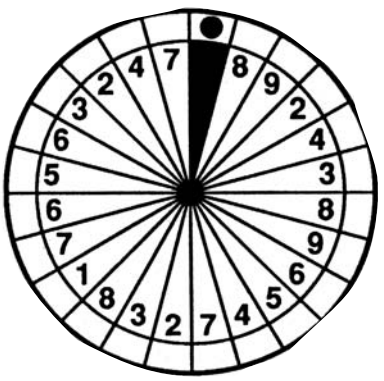
C. back 1 hour, 30 minutes



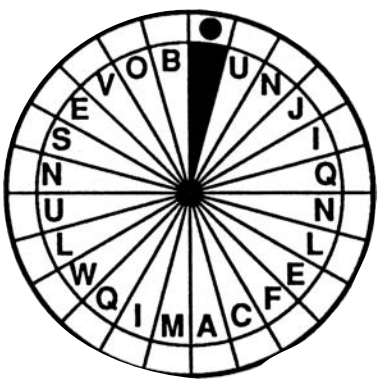
39 The ball in A moves clockwise, first one letter, then missing one and going onto the next, then missing two, and so on. If it lands on a consonant the ball in B moves to one number clockwise; if it lands on a vowel the ball in B moves to the third number ant-clockwise. If the ball in B lands on an even number the ball in C moves three letters clockwise; if it lands on an odd number the ball in C moves four letters anti-clockwise. What word will be spelt by the ball in C after seven moves?



A



B

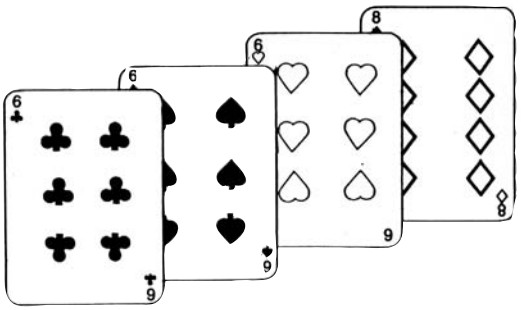


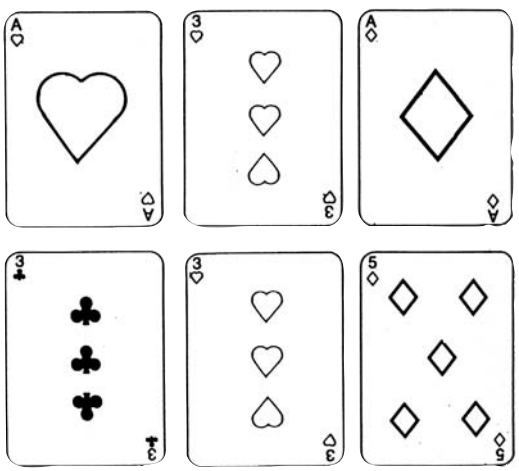
C

40 "Life's funny", said an old friend when I bumped into him the other day. "Listen to this, I was born in March, yet I celebrate my birthday in August, and last February I married my mother".

How is this possible?

41 Study the top cards and find what city is represented by the bottom cards.





42 Which is the odd one out?

A Cassius

B Cassia

C Casca

43 These are words that contain synonyms. If you remove some of the letters from the original word, you are left with a synonym of that word. Take, for example, the word CALUMNIEs. If you delete the 1st, 2nd, 4th, 5th and 6th letter you are left with LIES – a synonym of the original word. Here are a few more examples for you to try:

CATACOMB
CHARIOT
CHOCOLATE
DELIBERATE
DESTRUCTION
ENCOURAGE
EVACUATE
EXHILARATION
FACETIOUSNESS
FATIGUE
HURRIES
ILLUMINATED
INSTRUCTOR
LATEST
MASCULINE
PASTEURIZED

44 These 12 objects can be placed in 3 sets of 4. The sets are:
4 DOGS, 4 ANIMALS, 4 REPTILES

CLUMBER	**BONGO**	**TUMBLER**	**ROEBUCK**
POINTER	**LURCHER**	**AGUTI**	**TAIPAN**
TERRIER	**CAIMAN**	**SAURIAN**	**PADDOCK**

45 Alan and his sister Sue had gone to meet their mother at the railway station. Suddenly Sue gasped out loudly in surprise and remarked to her brother, "Do you see that man in the crowd over there?" "Its Brian", said Alan, "I don't believe it, quick, we must go and introduce ourselves".

Neither Alan nor Sue had ever met Brian before, nor had they ever seen a photograph or painting of him, neither was he a famous person.

How is this possible?

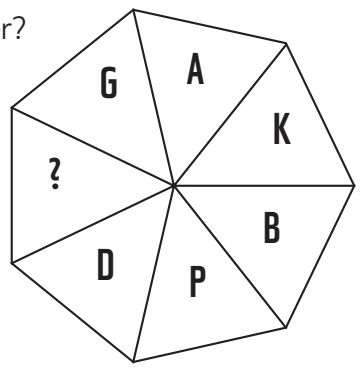
46 These objects can be placed in 3 sets of 4. The sets are:
4 VEGETABLES, 4 INSECTS, 4 REPTILES

MONITOR	**BLACK FLY**	**SKIRRET**	**MAY BUG**
MILLIPEDE	**BASILISK**	**COCKCHAFER**	**PIMENTO**
CROCODILE	**BROCCOLI**	**ANACONDA**	**COLEWORT**

47 What comes next in this series?

I S I T P N A A
D L I I Y N -

48 What is the missing letter?



49 These 12 creatures can be placed in 3 sets of 4. The 3 sets are: 4 ANIMALS, 4 FISH, 4 BIRDS

DOTTREL	**SQUID**	**LAMPREY**	**BUBALIS**
DASYPUS	**BITTERN**	**BANTING**	**CHAFFINCH**
MERLING	**HAMSTER**	**GROUPER**	**DOVE**

50 Decide which of these statements are true and which are false.

A Sydney is the capital of Australia.

B Julius Caesar invaded Britain in 55 BC.

C. Beethoven wrote only one opera.

D Gauguin was a Spanish post-impressionist painter.

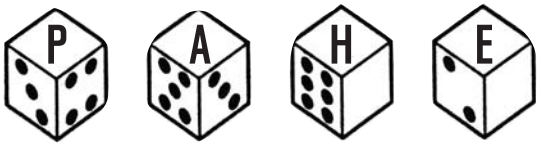
51 Which of the following statements are true and which are false?

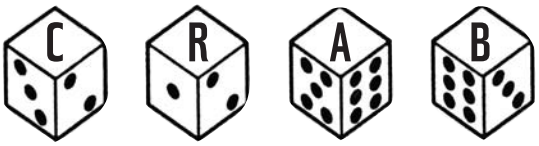
A. At 12.30 the hands of a clock form an angle of 180 degrees.

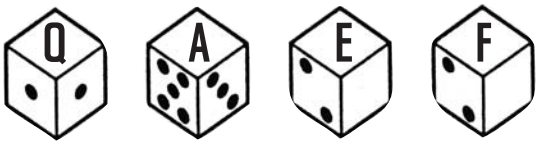
B. 15/16th is the same as 0.9375.

C. The Andes are south of the Rockies.

D. 15 capital letters of the alphabet consist entirely of straight strokes.

52 If  is WING

and  is HULK

what is this? 

53 If **FIVE+TWENTY = TWENTY–FIVE**

TWELVE = TWENTY

NINE+TEN = FIFTEEN

What is

TWENTY–FIVE–TWELVE?

Choose one of these:

FIVE TEN THIRTEEN FIFTY NINE ELEVEN

54 What should go into the empty square?

A	7	M	11	H	20
9	H	6	L	4	N
1	G	13	K	8	

55 What do these dates have in common?

15 February 1984

2 July 1983

16 December 1983

56 How many mistakes can you find here?

In the town their were shops of every descrption, but the biggest shop was stocked with such things as lawn mower's and garden tools. Two shops were managed by Stan and Bert, the son-in-laws of a town counsillor. Stan sold objects d'art, while Bert's shop was stocked with electricle goods. In the High Street their was a seathing mass of people and vehicls. At the end of the street was a monument in commemoration of the local boys who were killed in the the last war.

57 A man was working on a night shift when he suddenly received a telephone call giving him some information causing him to dash home at breakneck speed.

On bursting into his bedroom quite breathless he found his informant was quite correct and his wife was in bed with someone he had never even clapped eyes on before.

However, far from being angry he greeted them both with a friendly smile and a few hours later was bringing them both breakfast in bed.

What is the reason for this?

58 Lucretia Borgia invited a prospective victim to lunch. They ate a hearty meal of roast venison, with a selection of fresh vegetables, all washed down with the finest wine imported from Bordeaux in France.

After the meal they finished off with figs and grapes freshly picked.

"Just one apple left", said Lucretia, "I insist you have that. "No", said the guest, "I couldn't". "Tell you what", said Lucretia, "we will share it", and promptly sliced it neatly in two with her sharpest knife. The guest and Lucretia started to eat their respective halves when suddenly the guest's eyes rolled towards the ceiling and he keeled over backwards stone dead.

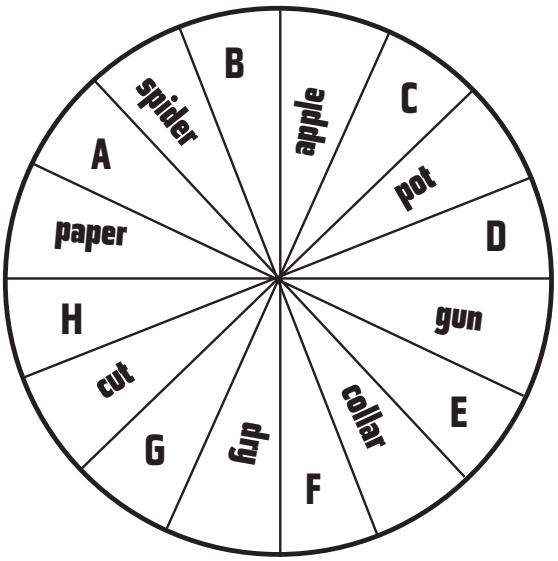
"Another victim successfully despatched," thought Lucretia.

How did she do it?

59 Take a word from each column and find eight reptiles, each of which has a name of three words:

A	B	C
Green	Nosed	Toad
Long	Tree	Snake
Spade	Eating	Boa
Rat	Lined	Snake
Snake	Tree	Skink
Egg	Foot	Frog
Four	Tailed	Snake
Green	Eyed	Viper

60 Find words for A, B, C, D, E, F, G and H.



61 Which of these statements are true and which are false?

A. When the time is either 5.50 or 10.30 the hands of a clock form an angle of 120 degrees.

B. London is further south than Newfoundland.

C. Greenland is the largest island in the world.

62 Which of the following words is the odd one out?

Chocolate
Biscuit
Lemonade
Jelly
Cake

63 The name of a dog can be found in each of these sentences. See if you can find them all. For example, in the following sentence the word 'corgi' is hidden.

Although Mike had changed the de<u>cor, Gi</u>llian still wanted to move house.

A. When I listened to my album by Blur, Cheryl went out.
B. The competition was won by Jack. Albert came last.
C. The man was caught trying to rob eagle's nests last week.
D. When I saw the bridge's span, I elected to go by boat.
E. A maniac Ollie certainly was, but we all liked him.

64 Match the four words from List A with a word with the opposite meaning from List B.

List A	List B
Light	**Large**
Minute	**Terminate**
Excellent	**Bad**
Start	**Dark**

Answers

1 ANN
give each letter a number according to its position in the alphabet.
TED = 20 + 5 + 4 (29)
ANN = 1 + 14 + 14 (29)
(George and Mary each add to 57)

2 A is true; B is false (the majority are concave); C is false (a spider has eight legs); D is false (a stalagmite grows upwards, whereas as stalactite grows downwards).

3 Nobody.
The Barber is a woman.

4

TANK	VEHICLE	TRACTOR
CASTLE	TURRET	TANK
BANK	SAND	CASTLE
RIVER	RIPARIAN	BANK
BRIDGE	SEVERN	RIVER
CARDS	YARBOROUGH	BRIDGE
WOOD	JACK	CARDS
BOW	YEW	WOOD
BULLS-EYE	ARROW	BOW
TRACTOR	FARM	BULLS-EYE
SOLUTION 1	SOLUTION 2	

5 OLIVE, SANDY, ISABEL (colours)

MARTIN, ROBIN, MAVIS (birds)

PRIMROSE, POPPY, MYRTLE (flowers)

GARNET, DIAMOND, PEARL (gems)

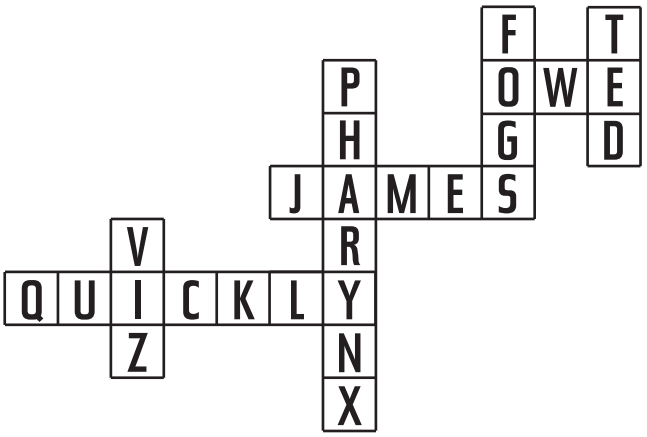
6 CLEFT
Turn the keys upside down and read the word formed by the lock ends.

7 If at first you don't succeed, try, try, again, then quit. There's no sense being a damn fool about it.

8 Tomorrow
The day before yesterday was two days ago; the day after the day before yesterday was yesterday; two days after that (yesterday) is tomorrow.

9 Suspension bridge

10

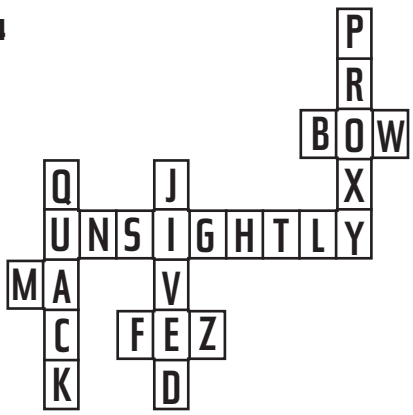


11
E – tetragon (4 sides)
C – pentagon (5 sides)
B – hexagon (6 sides)
G – heptagon (7 sides)
A – octagon (8 sides)
F – nonagon (9 sides)
D – decagon (10 sides)

12 CONSTANTINE

13 SCATTERBRAIN

14



15 SPINNAKER

16 ABANDON
The two cards at the top represent the letters of the alphabet, as there are 13 in each suit. Thus hearts represent A to M, and diamonds N to Z. Therefore:

Ace of hearts	A
2 of hearts	B
Ace of hearts	A
Ace of diamonds	N
4 of hearts	D
2 of diamonds	O
Ace of diamonds	N

17 C
In A two letters are missed out.
In B three letters are missed out.
In C four letters are missed out with the exception of V, which should be U.
The numbers in D, E and F follow the same pattern.

18

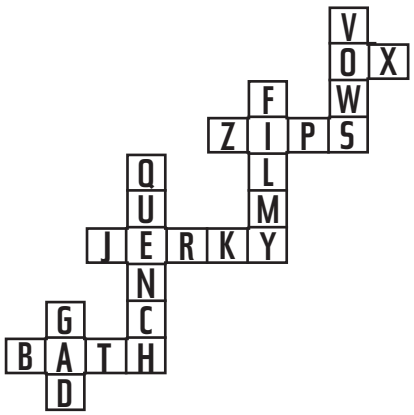
```
    2730
   29704
  249918
  278304
    2104
+ 279918
  842678
```

19

```
  130760
  130760
  130760
  130760
  130760
+ 194215
  848015
```

20 Wind-surfers
(spindrift = spray)

21



22 X is 4; Y is 6
Expressing each letter as a number according to its position in the alphabet, the table appears as below, with what were originally letters circled:

(19)	20	+1	
8	(10)		-2
(23)	25	+2	
16	(20)		-4
(1)	4	+3	
5	(11)		-6
(3)	7	+4	
x	12	(x is 4)	-8
(1)	y	+5	(y is 6)
4	(14)		-10

23 Nylon hose

24 A 8; B 5; C 7; D 1; E 9; F 3; G 6; H 2; I 4

25 F
The letters are the initials of the numbers in the opposite segments. X is opposite to 4.

26 Colony of Frogs
Horde of Gnats

Den of Snakes
Clutter of Spiders
Nest of Machine Guns
Park of Artillery
Doylt of Swine
Gang of Elks
Business of Ferrets
Volery of Birds
Hover of Crows
Drift of Wild Pigs

27 Washing line
(duds – slang word for clothes)

28

29

STALK	of	HUNTERS
BUILDING	of	SWANS
CLOUD	of	MAGPIES
SKULK	of	FORESTERS
COVERT	of	LAPWING
HERD	of	BADGERS
CONVOCATION	of	FRIARS
SORD	of	COOTS
BLAST	of	ROOKS
DESERT	of	MALLARD
TIDING	of	EAGLES
COLONY	of	SEAFOWL
NIDE	of	PHEASANTS

30 One after another.

31 Assume Horus is the greatest
"I am not" said Horus (LIE)
"Anubis is" said Isis (LIE)
"Isis is lying" said Anubis (TRUTH)

32 7
Male forenames are:
Leonard
William
David
Jim
Eric
Tom
(Alternate letters in the outer ring)

Female forenames are:
Iris
Mavis
Sarah
Vera
Ann
Amy
(Alternate letters in the inner ring)

33 Put the letter T in each blank space. Now start at the bottom left hand square and read up the first column, then along the top and eventually spiralling into the centre to spell out the word prestidigitation. A very magic word presented very squarely indeed!

34 FIR
The first letter is indicated by the position of the hour hand relative to the hours – in this case 6, that is sixth letter (F).
The next letter is shown by the position of the second hand. Here it is on the 9th second, and the ninth letter is I.
The third letter is indicated by the position of the minute hand. As it points to the 18th minute, it shows that the third letter is R – the 18th letter of the alphabet.

35 A Orange
B Red
C Indigo

D Cerise
E Magenta

36 Cousin Margaret. The statements of Aunty Mary, Uncle Jim and cousin Margaret are true.

37 A False
B True
C False
The near-side wheels rotate anti-clockwise, but the off-side wheels rotate clockwise! In C the acute angle is slightly more than 60 degrees, because by the time the minute hand reaches 10, the hour hand will have moved slightly past the figure 4.

38 CHILDREN
Present time indicated – CH, A. Forward to 5.15 – IL, B. Back to 12.50 – DR, C. Back to 11.20 – EN.

39 JONQUIL
The moves result as follows:

	Ball A	Ball B	Ball C
1st move	G	8	J
2nd move	H	9	O
3rd move	A	4	N
4th move	E	6	Q
5th move	U	7	U
6th move	K	6	I
7th move	I	8	L

40 He was born in August in a town called March, became a priest and married his widowed mother to her second husband in February

41 MOSCOW
This problem is based on the fact that 26 cards make half of a full deck of playing cards, and there are also 26 letters of the alphabet. These 26 letters are represented by the cards at the top:

Clubs	Ace to 6	A to F
Spades	Ace to 6	G to L
Hearts	Ace to 6	M to R
Diamonds	Ace to 6	S to Z

Thus the cards at the bottom are:

Ace of hearts	13th letter	M

3 of hearts	15th letter	O
Ace of diamonds	19th letter	S
3 of clubs	3rd letter	C
3 of hearts	15th letter	O
5 of diamonds	23rd letter	W

42 B Cassia is a tropical tree; Cassius and Casca were conspirators against Julius Caesar.

43 There are many different possible answers. We suggest you check your answers in your dictionary.

44 DOGS	ANIMALS	REPTILES
LURCHER	BONGO	CAIMAN
CLUMBER	TUMBLER	SAURIAN
POINTER	AGUTI	TAPIAN
TERRIER	ROEBUCK	PUDDOCK

45 They knew that Alan was a twin but that he had been separated from his twin brother at birth. Brian was the missing identical twin who they immediately recognised in the crowd.

46 VEGETABLES	INSECTS	REPTILES
PIMENTO	MINIPED	BASILISK
COLEWORT	MAYBUG	ANACONDA
SKIRRET	COCKCHAFER	MONITOR
BROCCOLI	BLACKFLY	CROCODILE

47 A.
There are three separate series. Starting with the first letter and taking every third letter thereafter – ITALY: Starting with the second letter and taking every third letter thereafter – SPAIN: from the third letter – INDIA.

48 V
Start at A and work clockwise to alternate segments in the sequence ABcDefGhijKlmnoPqrstuV

49	ANIMALS	FISH	BIRDS
	DASYPUS	LAMPREY	BITTERN
	BANTING	MERLING	DOTTEREL
	HAMSTER	SQUID	CHAFFINCH
	BUBALIS	GROUPER	DOVE

50 A. FALSE, B. TRUE, C. TRUE, D. FALSE
Canberra is the capital of Australia; Gauguin was a French post-impressionist painter.

51 A is false (the angle is 165 degrees of 195 degrees)
B is true
C is true
D is true (AEFHIKLMNTVWXYZ)

52 Sigh
Add the number of spots on each die to the letter shown. For example, Q plus 2 is S.

53 FIVE
Add the number of straight strokes that make up the words:
FIVE (10) plus TWENTY (18) = 28
TWENTY-FIVE = 28
TWELVE = 18
TWENTY = 18
The only word at the bottom that contains 10 strokes (the difference between 28 and 18) is FIVE.

54 T
In the bottom row numbers are substituted for letters (or letters for numbers) compared with the top row. T (the 20th letter) corresponds with 20 in the top row. (The middle row has no bearing on this comparison and is merely a 'red herring'.)

55 They all fall in the middle
15 February was the middle of February (1984 being a leap year); 2 July was the middle day of the year 1983; and 16 December was the middle of December.

56 12
The mistakes are: there; description; mowers; sons-in-law; councillor; objets d'art; electrical; there; seething; vehicles; commemorating; the (repeated).

57 His wife had just given birth to a baby.

58 She used a knife coated just on one edge with cyanide. When she sliced the apple in two, the victim's half only was poisoned.

59 Spade-foot toad
Snake-eyed skink
Rat-tailed snake
Long-nosed viper

60 The disposition of the letters from A to H indicates that the words are considered in a clockwise direction. Starting with PAPER, and reading clockwise:
paper
(A) MONEY
spider
(B) CRAB
apple
(C) JACK
pot
(D) SHOT
gun
(E) DOG
collar
(F) BONE
dry
(G) CLEAN
cut
(H) GLASS
paper

61 A. False B. False, C. True
In A, note that the hour hand will not be exactly on the hour.

62 Lemonade
None of the rest are drinks.

63 The following words can be found:
A. Lurcher
B. Jackal
C. Beagle
D. Spaniel
E. Collie

64

List A	List B
Light	Dark
Minute	Large
Excellent	Bad
Start	Terminate

Number Puzzles

1 **A** What starts the top series?
B What ends the bottom series?

– 8 1 6 3 2 6 4 1 2 8
1 9 3 8 7 6 1 5 2 3 0 –

2 What is the last line?

9 7 5 9 4 9
6 3 4 5 3 6
1 8 2 0 1 8

3 What are A, B, C and D?

1	2
5	7

8	7
6	9

17	13
14	16

33	27
31	29

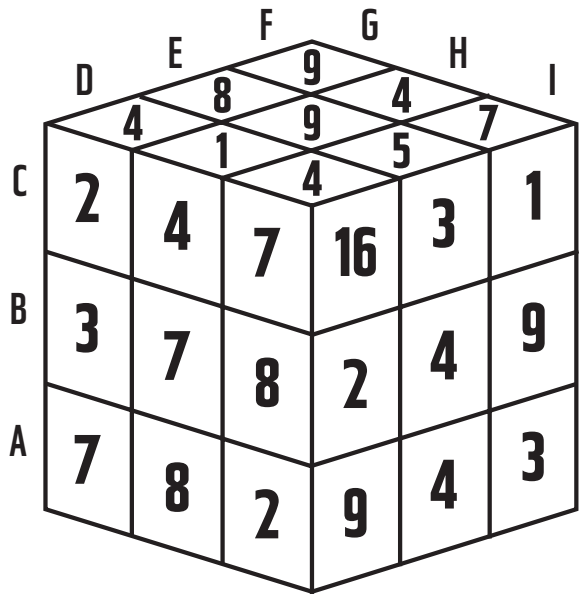
6	9
2	3

A	B
C	D

4 What comes next?

6 1 3 1 4 –

5 Each letter points to a row of SIX numbers. Which is the odd one out?



6 How can you make this addition correct?

11
66
88
96
294

7 Counting down, first by one place, then by two places, then by three and so on (adding one extra place each time), as in this example – 15, 14, 12, 9, 5, 0 – which of these numbers will finish at zero?

102 103 104 105 106

8 In a party of 35 people there are twice as many women as children and twice as many children as men. How many of each are there?

9 There was a 16 horse race in progress at the race-course, but I missed the finish. I asked 6 of my friends to tell me the number of the winner. These were their answers.

A It was even

B It was odd

C It was prime

D It was a square number

E It had 2 digits

F It was between 6 and 12

But only four had told the truth.

Which number was the winner?

10 A blind man had only black or white socks.
In his drawer he had 4 socks. He went to the drawer and took out 2 socks.

The chances that he had a pair of white socks was ½ .

What were the chances that he had drawn out a pair of black socks?

11 Which two of these can be reversed so that the total of each row – across and down – equals 10?

A	5	4	1
B	6	1	3
C	3	5	2

12 What goes into the empty brackets?

1	2	(	2	8	4	6	)	3	4				
4	5	(	1	2	2	1	1	5	1	8	)	6	7
7	8	(	2	8	4	0	3	2	3	6	)	9	10
11	12	(									)	13	14

13 There were 19 flautists in the Orchestra.
One day a consignment of flutes arrived.
The lead flautist took 1/19 of the consignment + 1/19 of a flute
The 2nd flautist took 1/18 of the remainder and 1/18 of a flute
and so on until there were only 2 flautists left.

The penultimate flautist took ½ of the remainder and ½ of a flute.

The last flautist felt a little aggrieved.

a Why did he feel aggrieved?

b How many flutes were in the consigment?

14 What is the sum of the numbers in the following list which are consecutive (for example 3, 4, 5)?

15 5 10 28
24 7 18 26
11 21 17 13
22 9 1 20

15 From the example given below, decide what goes into the empty brackets.

5 1 2 (4 2 3 5 1 6) 6 4 3
7 8 6 ( ) 4 1 2

16 If **13 x 3 = 40**

12 x 3 = 35

15 x 3 = 46

and **16 x 3 = 47**

what does **17 x 3 = ?**

17 Which arithmetical signs should go into the brackets to complete the equations?

A. (5 ( ) 5) ( ) 5 = 2

B. 4 ( ) 4 ( ) 4 = 4

C. 3 ( ) 3 ( ) 3 = 6

D. 2 ( ) 2 ( ) 2 = 8

18 Two farm labourers were arguing about a water butt. One said it was less than half full and the other said it was more than half full.

To settle the argument they asked the farmer to adjudicate.

Although there were no other implements or vessels at hand with which to measure the water, the farmer was quickly able to determine who was correct.

How did he do it?

19 What number goes into the empty brackets?

16 (4 2 5 6)
9 (3 8 1)
25 ( )

20 If I had one more sister I would have twice as many sisters as brothers. If I had one more brother I would have the same number of each. How many brothers and sisters have I?

21 Select the number that is midway between the lowest number and the highest number. Which number is midway between that number and the number that is nearest the highest number?

35 5 52 36 67
69 4 51 37 71
55 68 3 53 39

22 A bag contains 64 balls of eight different colours. There are eight of each colour (including red). What is the least number you would have to pick, without looking, to be sure of selecting 3 red balls?

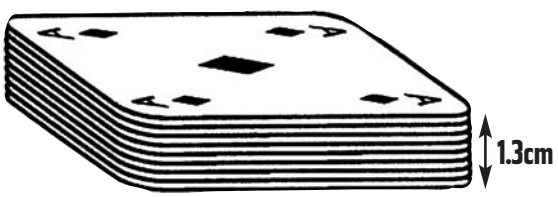
23 What goes into the empty brackets?

6 3 (5 9 4 2) 7 1
5 9 (7 1 6 3) 4 2
9 4 (4 2 5 9) 2 8
(– – – –)

24 Two men A and B played a round of golf. A said to B, "Let us play for a wager on each hole, we will play for half of the money in my wallet at each hole. I have £100 in my wallet, so for the first hole we will play for a stake of £50. If I win you will give me £50, and if I lose you will be given £50. On the second hole I will either have £150 in my wallet or £50, so we will play for £75 or £25."

After the 12th hole it started to rain, so they stopped the game and went back to the club house. As A had won 6 holes and B only 4 holes with 2 holes being tied, A said "I will buy the drinks". To his amazement, he had only £71.18 in his wallet. Why was this possible? It makes no difference in the order of winning the holes.

25 If a pack of playing cards measures 1.3cm when viewed sideways, what would be the measurement if all the aces were removed?



26 At college, 70% of the students studied Maths, 75% studied English, 85% studied French and 80% studied German.

What percentage at least must have studied all 4?

27 From the numbers below and using each number only once in each set, select at least five sets of three that add to 29:

18 6 13 9 19 12

11 4 10 5 8 17

28 What is X?

14	19
8	22

1	50
22	41

22	4
30	8

10	34
28	X

29 What goes into the empty brackets?

2 (38) 3

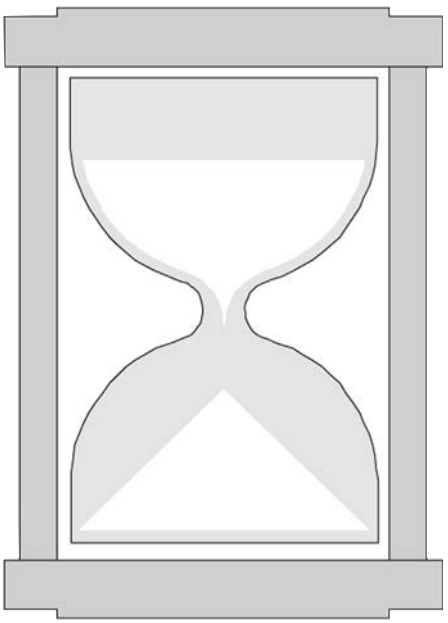
4 (1524) 5

6 (3548) 7

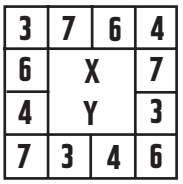
8 ( ) 9

30 The opposite faces of a die add to seven. The dice below rotate in the directions indicated, one face at a time. After three moves, what will be the total of the front faces?

31 With a 7 minute hourglass and an 11 minute hourglass, what is the quickest way to time the boiling of an egg for 15 mins?



32 Which of the pairs of numbers at the bottom should be placed at X and Y so that each row of four numbers – across, down and diagonally – totals 20?



33 All of these except one have one thing in common. Which is the odd one out?

A. 764345896

B. 125612456

C. 367874341

D. 456578325

E. 178652457

F. 279651238

34 A croupier in a Casino offered a gambler $100 if he could throw a 6 with one throw of a standard die.

If he failed then he was allowed another throw, if he failed again he was allowed a 3rd throw.

How much should the gambler pay to the croupier for the chance to win $100, stake not returned? Only one $100 to be won.

HINT: One throw chances ⅙
Two throws chances ⅓
Three throws chances ½ which is even money

So the stake should be $50...or should it?

35 What numbers are represented by A, B and C?

A	B	A	B	A	23
B	C	A	A	A	20
B	A	B	C	A	24
B	A	C	C	A	21
B	B	A	A	B	27
31	24	20	21	19	

36 Consider the following and decide which is the odd one out.

A. 6 + 17 – 9 ÷ 7 + 3

B. 3 x 11 + 6 ÷ 13 + 2

C. 2 x 6 x 3 + 4 ÷ 10

D. 1 + 8 – 3 ÷ 2 + 2

E. 7 – 4 + 6 – 1 – 3

37 What is the total of the four blank squares in the centre when appropriate numbers are filled in?

1	2	9	1	2	3
8	3	3	4	7	5
4	5			5	6
5	9			4	11
7	8	3	13	8	9
2	15	9	10	1	17

38 What should go into the last line in the left-hand column?

1812	9234
2421	6437
1556	3578
1436	2794
----	2545

39 Puss had been called in to Monravia to get rid of the rats. Puss had been told that he could bring as many of his friends as he wished to help him.

After a year every cat had killed an equal number of rats: the total was 1,111,111 rats.

How many cats were there?

40 What is X?

24 81 63 26 412 8 25 X

41 If 1 = X, 2 = C and 3 = M, what is $\frac{3}{2} + \frac{2}{1}$?

42 What goes into the empty brackets?

3 4 5 6 (7 1)
6 5 9 2 (1 1 7)
7 2 5 1 (9 4)
9 5 9 2 ( )

43 What comes next?

14 21 13 2 18 1 20 –

44 3 men are playing dice, each using different numbers, each dice has three numbers repeated. The men can choose their numbers. If

A beat B and

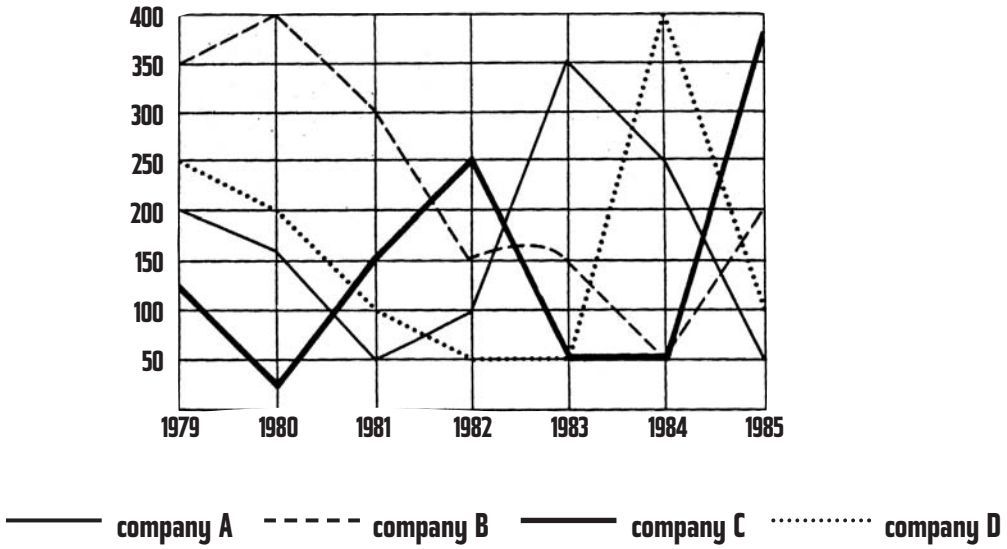
B beat C and

C beat A

What numbers should each dice have?

This is a unique answer.

45 These graphs show the annual profits of four different companies. Which company showed the greatest overall profit in the five years from 1981 to 1985 inclusive?



46 A census taker called at a man's house and said, "What are the ages of your 3 daughters?"

The man said "If you multiply their ages together it equals 72 and if you add them it equals your door number". The census taker said "Well if you cannot give me further information I still don't know".

The man said "Well my eldest daughter has a dog with a wooden leg".

The census taker said, "I know now".

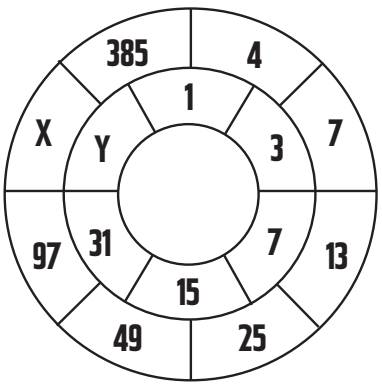
What were their ages?

47 At the casino I had to pay a £1 entrance fee. I also gave the cloakroom girl £1 tip each evening. Each day for four days I lost half of the money I had left. I went home with £1. How much did I have to start with?

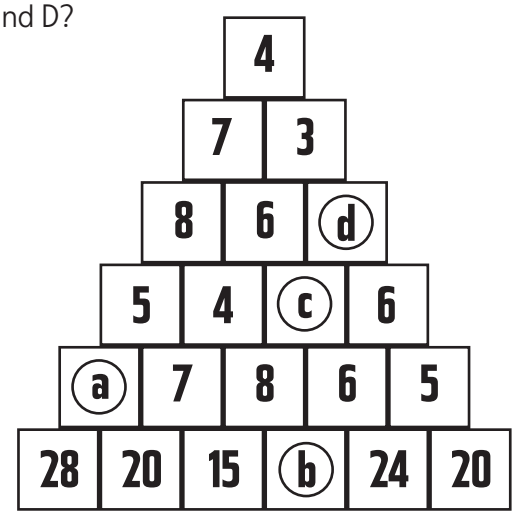
48 What comes next in this series?

1 2 6 24 120 720 –

49 What are X and Y?



50 What are A, B, C and D?



51 Give values for A, B and C.

3	9	**A**
B	2	2
C	5	6
7	8	2
3	5	10
9	1	9

52 A billiard table is in the form of a rectangle with integral sides and just four pockets, one in each corner. A ball shoots out of one of the pockets at angles of 45° to the sides. Will it bounce around the table or finish up in one of the pockets?

53 100 aliens attended the intergalactic meeting on Earth:

78 had two heads
28 had three eyes
21 had four arms
12 had two heads and three eyes
9 had three eyes and four arms
8 had two heads and four arms
3 had all three unusual features

How many had none of these unusual features?

54 Add the sum of the odd numbers in square A to that of the even numbers in square B and subtract the sum of the prime numbers in square C.

4	7	9
18	26	2
3	5	15

A

8	10	7
3	1	2
14	13	6

B

6	15	17
3	9	4
21	11	19

C

55 What are X and Y?

$$\begin{array}{r} 31X4 \\ 6Y95 \\ \hline 10019 \end{array}$$

$$\begin{array}{r} 491X \\ 3Y01 \\ \hline 1111 \end{array}$$

56 Whilst driving his two young sons to the seaside, dad hit on an idea to keep the boys occupied. He invited each of them to choose a number between 0 and 9 and to watch for them on the oncoming cars, promising a prize to the first one to reach twenty. Jimmy chose 0 and Freddie chose 1. Why was Freddie more likely to win than Jimmy?

57 An English football club had 17 players in their squad. There were 9 English players and 8 foreign players.

How many different teams can they select if each team had 5 English players and 6 foreign players?

58 Add the two highest numbers from the following list and take away the sum of the three lowest numbers.

16 13 9 11 23 19
5 14 12 15 18 17

59 If 6 3 5 4 2 equals 5 2 6 3 4, what is B C D E F?

60 Which date does not conform with the others?

A. 1584 B. 1692 C. 1729 D. 1809 E. 1980

61 What goes into the empty brackets?

1 4 4 (3 6 2 5) 1 2 5
9 6 (1 6 1 8) 1 2 6
1 1 2 ( ) 1 4 4

62 Which of these is the odd man out?

4 18 16 8 24

63 Three husbands and wives visit a casino. The men are John, Ernie and Oswald. The women are Alice, Betty and Marjorie. Each of the six gamble independently but agree to stop whenever each couple's gain or loss reaches £200. All three husbands lose all the time but each couple wins the agreed £200. Each of the six had participated in as many single games as on average he or she had won or lost pounds per game. Ernie lost £504 more than John. Betty won £2,376 more than Marjorie.
Who is married to whom?

64 A has thought of a number between 13 and 1300. B is trying to guess it.

1 B asks whether the number is below 500
A says "yes"

2 B asks if the number is a perfect square
A says "yes"

3 B asks if the number is a perfect cube
A says "yes"

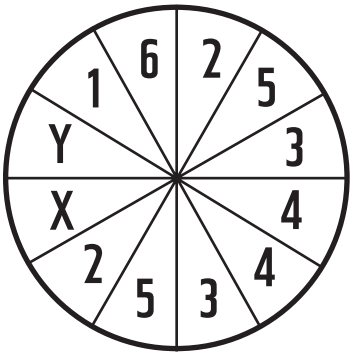
A says "only two of my answers are correct"

A says "the number starts with 5, 7 or 9"

B now knows the number.

What is it?

65 What are X and Y?



66 Which column does not conform?

A	B	C	D	E	F
17	14	22	31	29	33
9	13	15	22	19	8
13	11	17	17	31	19
24	7	2	13	5	20
2	29	8	4	2	17
10	6	21	3	10	3

67 The odometer in the car showed 15951 miles, a palindromic number. Two hours later the odometer once again was palindromic. How far had the car travelled?

68 If 3 (76) equals 212
and 4 (320) equals 125
what is:
5 (6100)?

69 Looking at the columns below, work out what X is.

2 1 8 5 9
3 7 2 6 2
4 2 1 1 X

70 What are X and Y?

7 8 6 9 5 10 X Y 3 12

71 Which is the odd number out?

3 11 17
7 15 29

72 The local cricket team used 16 players during the season and each players' total score for the season was a palindromic prime number. No two players had the same score for the season. If you sum the 16 players' total score and then find the average you arrive at a 3-digit number that contains the same 3 digits. The lowest total was 11.

What was the average total?

73 What is the value of X in each of the following three diagrams?

5	4	9
3	5	8
2	7	x

A

32	35	39
42	46	51
3	8	x

B

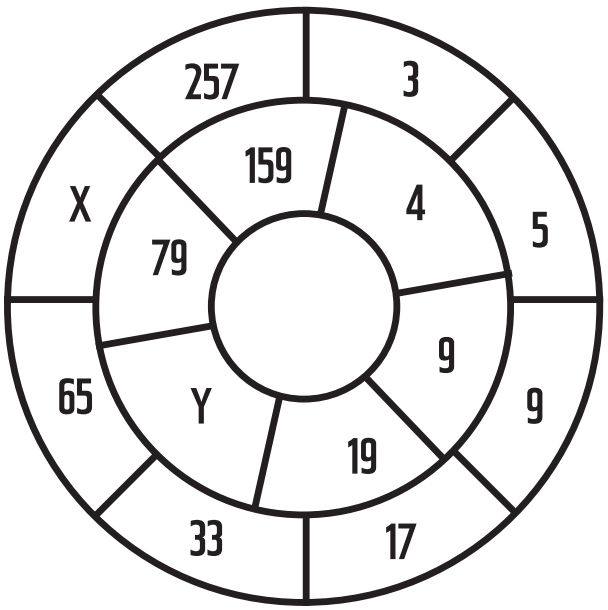
A	E	J
D	x	O
F	L	S

C

74 What number goes into the brackets?

64 (49) 144
85 (57) 119
144 ( ) 90

75 Give values for X and Y.



76 A heavy smoker, worried about the high cost of tobacco, decided to economise by saving his cigarette ends and making new cigarettes from them.

He found that each cigarette end accounted for one-sixth of the whole cigarette. He smoked 36 cigarettes a day.

By using this method, how many EXTRA cigarettes was he able to obtain in a week?

77 The casino game called craps is played with two dice 1-6 standard.

7 or 11 wins.

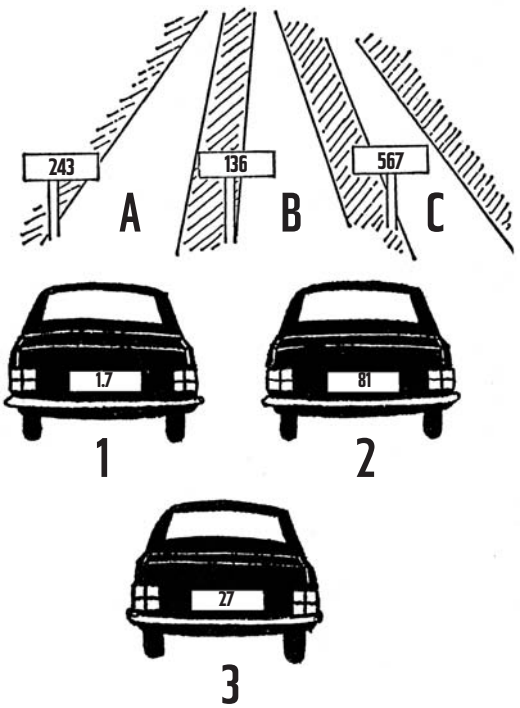
Which 3 numbers lose?

78 Cyril lives in a road, the houses are numbered 8 to 100.

John asks "Is it greater than 50?"
Cyril answers “YES”.
John asks "Is it a square number?"
Cyril answers “YES”.
John asks "Is it an odd number?"
Cyril answers “YES”.
John asks "Is the first digit an 8?"
Cyril lies.

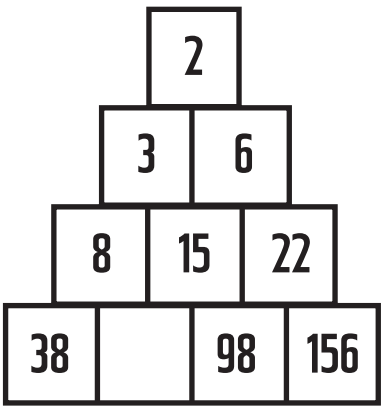
What is the number of the house belonging to Cyril?

79 Which car goes into which road?



80 Sheffield is 100 miles from Worcester.
At 1pm train A leaves Sheffield for Worcester and travels at a constant speed of 30mph.
One hour later train B leaves Worcester for Sheffield and travels at a constant speed of 40mph.
Each train makes one stop only at a station ten miles form its starting-point and remains there for fifteen minutes.
Which train is nearer to Sheffield when they meet?

81 What number should go into the blank space?



82 What two terms complete this series?

A 1 D 4 H 8 M 13 _ _

83 What are X and Y?

7 8 6 9 5 10 X Y

84 Assuming four of these dates are correct, which one is wrong?

A Saturday 7 January 1764
B Saturday 21 January 1764
C Saturday 11 February 1764
D Saturday 11 March 1764
E Saturday 14 April 1764

85 Two square floors had to be tiled, covered in 12'' square tiles. The number of tiles used was 850 in total.

Each side of one floor was 10' more than the other floor.

What were the dimensions of the two floors?

86

Boxes 1 + 2	**weigh 12 KG**
Boxes 2 + 3	**weigh 13.5 KG**
Boxes 3 + 4	**weigh 11.5 KG**
Boxes 4 + 5	**weigh 8 KG**
Boxes 1 + 3 + 5	**weigh 16 KG**

How much does each box weigh?

87 Add the difference between the two lowest numbers to the difference between the two highest numbers:

91 13 76 12 7 88 17 84
11 14 87 15 86 16 89 85

88 What are X and Y?

1 3 3 6 5 9 7 12 X Y

89 Subtract the sum of the three lowest numbers from the sum of the three highest numbers.

11 36 7 38 3 45
39 10 48 37 12 36

90 What is the last term in this series?

B 2 T 20 Q 17 G 7 C –

91 What is X ?

4 9 X 25

92 At a demonstration, protesters outnumbered the police by 8 to 1.

84 arrests were made, averaging 3 for every 2 policemen.

How many demonstrations were there?

93 A hand in bridge in which all 13 cards are a 9 or below is called a YARBOROUGH after the Second Earl of Yarborough (d. 1897) who frequented games schools and wagered 1000-1 against dealing such a hand.

Was he on to a good thing?

94 Which date does not conform with the others?

A 1417
B 1533
C 1605
D 1722
E 1812
F 1902

95 What comes next?

208 CIV 52 XXVI –

96 Which one is wrong?

A $\frac{9}{4} + 1.75 = 4$

B $\frac{9}{5} + 2.2 = 4$

C $\frac{6}{5} + 2.8 = 4$

D $\frac{6}{4} + 1.5 = 4$

E $\frac{9}{6} + 2.5 = 4$

97 Multiply the second highest number by the second lowest number and then divide the result by the third lowest number.

10 35 2 32 37 33 9

13 36 12 14 34 3 11

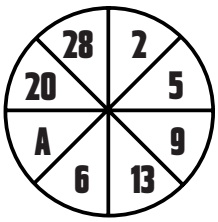
98 What is X?

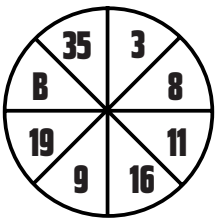
3 6 10 15 X 28

99 What numbers belong to A and B?

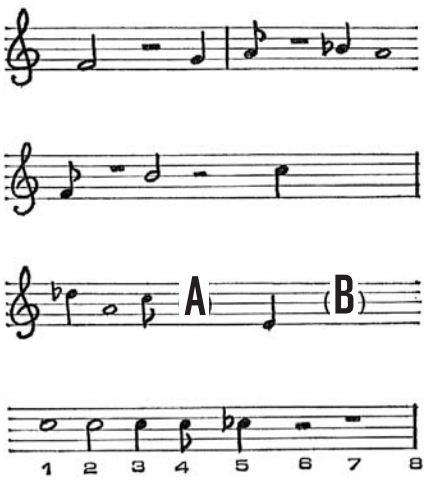
36 (35) 60
65 (58) 104
A (79) B

100 What numbers should take the place of A & B?





101 Can you compose music? Study the music below and decide which of the numbered symbols belong to A and B.



102 Murmansk, in Russia, is on a longitude 33 degrees east. Victoria Island, off Canada, is on longitude 110 degrees west. If you travelled due east from the North Pole, which would you reach first?

103 What numbers are represented by A and B?

4	5	6
7	8	1
5	3	A
B	9	7
9	9	1
7	6	7

104 'ERNIE' is a random number producer. Pi could also be said to be a random number producer, because the decimal equivalent is known to only 2000 million decimal places. Nobody knows the million millionth decimal place, each digit has the same chance to be the one.

So if you had a transcendental number which consists of random digits, what would be the average difference between two random digits side by side?

It should be $\frac{0+9}{2} = 4.5$

But it isn't. What is it?

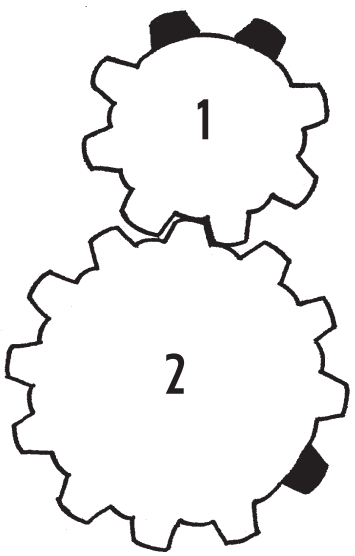
105 Complete this sequence:

2 3 4 9 16 81 256

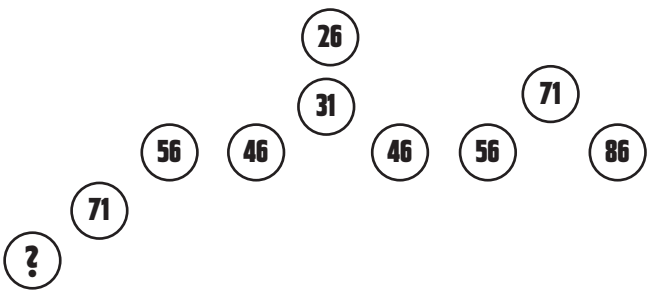
106 How many revolutions of 1 will take place in order to bring the black teeth into mesh with the other:

A If 1 rotates clockwise

B If 1 rotates anti clockwise?



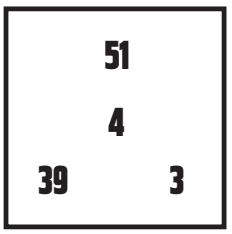
107 What number should replace the question mark?

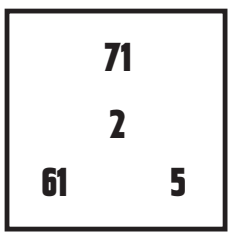


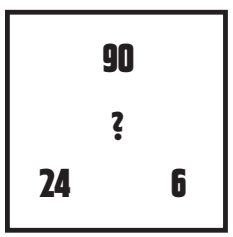
108 Jane is thinking of two whole numbers, and asks Freddy to work out what they are. The only clue she will give him is that their product is three times larger than their sum.

Can you work out what the two numbers are?

109 What number should replace the question mark?







110 A man wagers £40.00 and wins back his original stake, plus £60.00.
He spends $\frac{1}{10}$ of it on a meal and $\frac{1}{20}$ of it on a taxi fare home home.
He then buys a present for his wife which cost $\frac{1}{2}$ of what he has left.

How much more money does he have than when he started out ?

111 Two professionals had no further teaching to do on the golf course, so they decided to have a match. They scored 79 and 81.

Amazingly, the 81 score won, they were not playing match play, how was that?

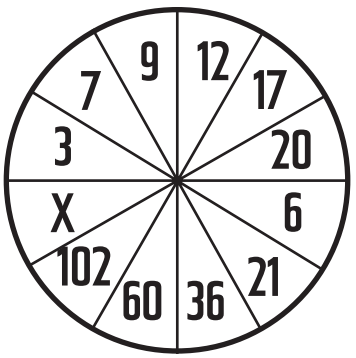
112 What is the difference between the lowest number and the average of all the numbers?

3 9 12 15 18 25 30

113 Square the lowest even number and subtract the result from the third highest odd number:

9	**67**	**4**	**11**	**58**	**66**
2	**65**	**1**	**8**	**10**	**41**
6	**71**	**5**	**12**	**25**	**3**
7	**41**	**32**	**70**	**69**	**68**

114 What is X?



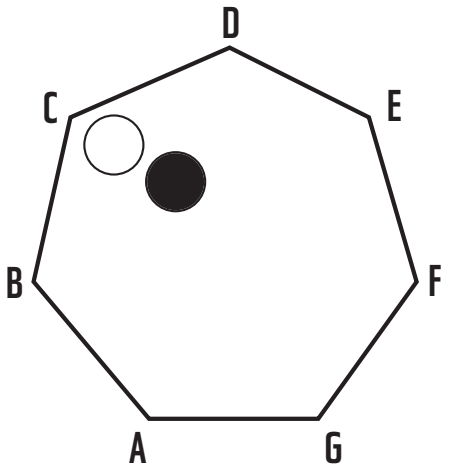
115 What comes next in the series?

16 72 38 94 50 –

116 The black ball moves one position at a time clockwise. The white ball moves two positions at a time anti-clockwise.

A In how many moves will they be together again?

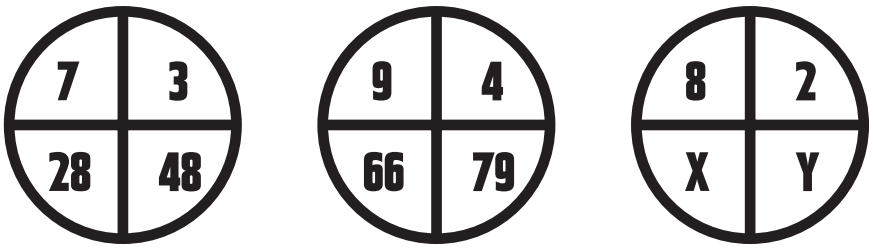
B In what corner will they be?



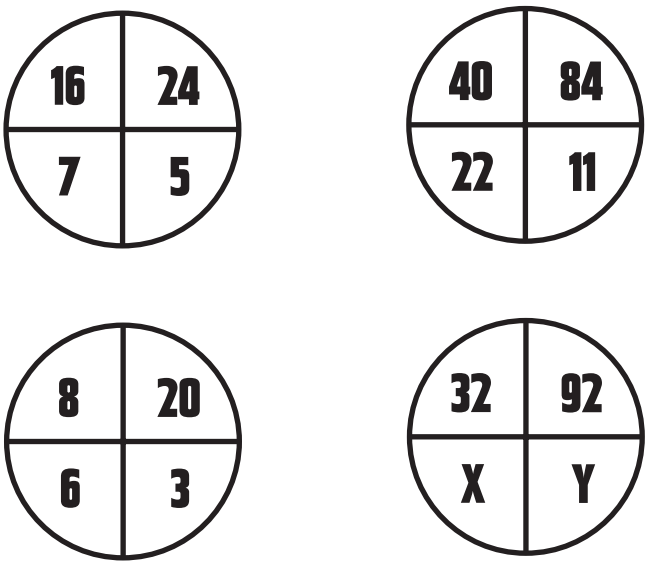
117 What is X?

1	2	3	4	5	6	7	8
7	14	1	2	2	1	8	7
10	3	4	18	2	1	8	6
8	5	11	12	2	21	3	4
2	11	6	3	13	1	2	10
2	5	5	1	6	10	2	X

118 What are X and Y?



119 What are X and Y?



120 What comes next in the series?

1072 1055 1021 953 817 545 –

121 In a 6 horse race the bookmaker needed to make a profit of 25% in order to cover his expenses, salary for his clerk, income tax and profit.

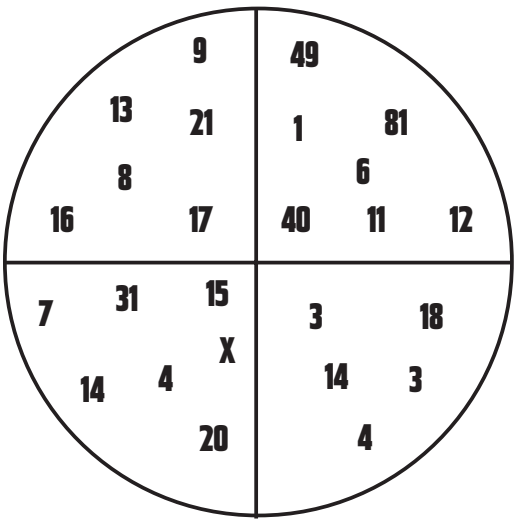
These were the prices, what price should be quoted for No. 6?

Horse No.	Against
1	2–1
2	3–1
3	4–1
4	5–1
5	6–1
6	?

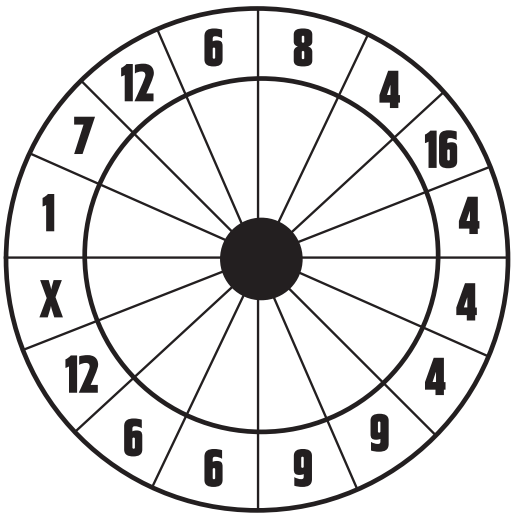
122 If : **4** equals **4**,
9 equals **7 1/2**,
16 equals **12**,
25 equals **17 1/2**,
36 equals **24**,
49 equals **31 1/2**,

What does **64** equal?

123 What is X?



124 What is X?



125 Insert arithmetical signs between these numbers to make the equation correct:

18 2 9 24 5 = 100

126 What is the total of the square of the lowest number, the square root of the highest number, and the number that is midway between the results?

168	9	4	167	162
8	5	161	7	163
169	6	166	10	3
11	12	165	14	164

127 The grass in a school playing field had to be cut.

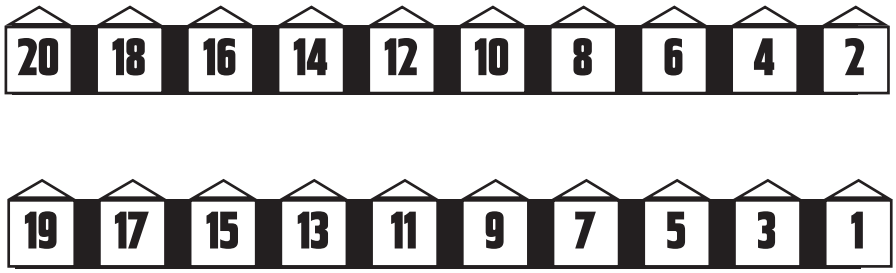
One man could mow the grass in 4 hours
One man could mow the grass in 5 hours
One man could mow the grass in 6 hours
One man could mow the grass in 8 hours

If they all joined forces to cut the field and they all worked at their individual rates, how long would it take to cut the grass?

128 A factory was cutting rolls of cloth into 1 metre lengths, from a 200 metre roll. How long would it take for the machine to cut the roll if each cut took 4 secs?

129 In a road with 20 houses:

Tom lives at number 4;
Bill lives four houses from Tom;
Jim lives opposite Bill's next door neighbour;
Fred lives four houses from Jim.
What is the number of Fred's house?



130 Reading across, down or diagonally, which three consecutive numbers give the highest total?

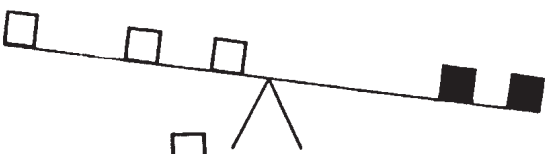
6	8	10	10	8	10
10	11	7	7	1	18
9	9	10	7	12	1
7	9	10	8	7	8
12	10	7	9	11	8
9	8	12	7	10	10

131 The black blocks each weigh 3 kilograms. The white blocks each weigh 2 kilograms. which of these see-saws is wrong?

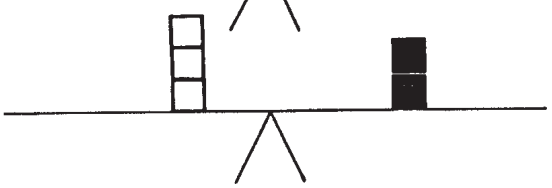
A

B

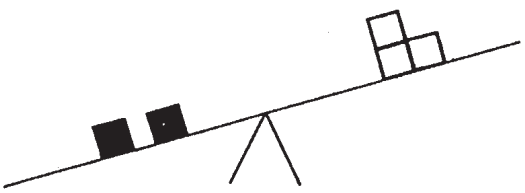
C



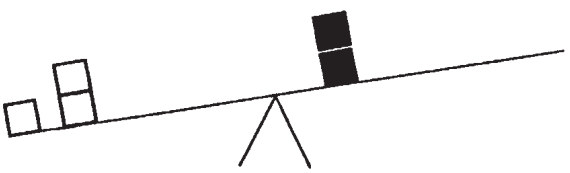
D



E



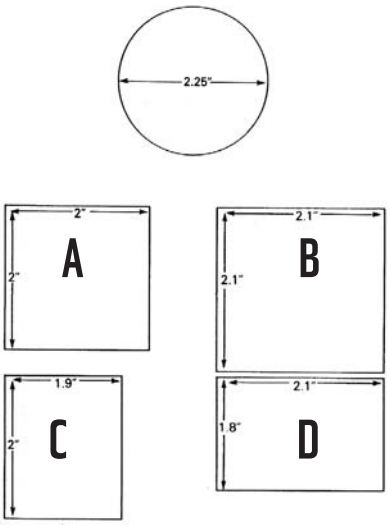
F



132 What are X and Y?

3 7 4 6 21 12 12 84 36 24 420 X Y

133 Given that the area of a circle is 3.14 times the square of its radius, and without using a pocket calculator, which of the figures below has an area nearest to that of the circle?



134 5 friends live in the same road A, B, C, D, E.

The numbers of B, C, D when multiplied together equals 1260. The numbers B, C, D when added equal twice E's number, and is even.

A's number is half as much again as E's. The road numbers run from 2 to 222.

What are the 5 house numbers?

135 A woman has 7 children.

On multiplying their ages together one obtains the number 6591.

Given that today is the birthday of all 7, what are their seven ages? There are two sets of triplets.

136 When the die shows an even number on top, the counter moves two places forward in addition to the number on the die.

When the die shows an odd number on top, the counter moves one place back in addition to the number on the die.

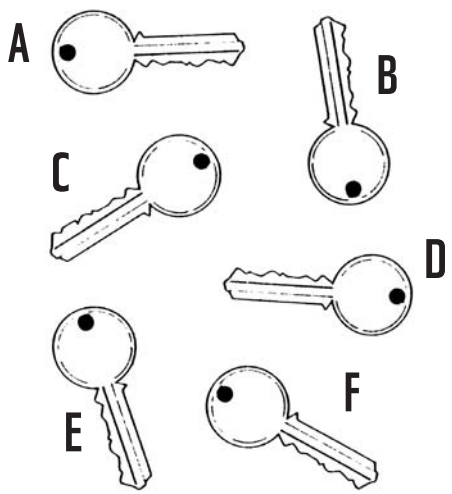
On what number will the counter be after seven throws of the die, producing the following numbers on top.

6 4 3 1 2 6 5

137 What goes into the empty brackets?

12 (27144) 3
13 (64169) 4
14 (125196) 5
15 ( ) 6

138 Which key will not fit the lock?



139 Give values for x and y:

$$2X - Y = 5$$
$$X + Y = 16$$
$$Y - X = 2$$

140 What goes into the empty square?

0	7	2	4	12	6	3
	7	9	6		18	9

141 Given two numbers, if we subtract half of the smaller number from each number, the result with the larger number is three times as large as the result with the smaller number.

How many times is the larger number as large as the smaller number?

142 What number should replace the question mark to a definite rule?

143 A farmer told his labourer to pick 896,809 apples and pack them into as few boxes as possible, each having the same number of apples.

How many boxes did he use?

144 A driving school claims an average test pass rate of 76.8 per cent. What is the least number of pupils required to achieve this result?

145 How many combinations of three or four of these numbers will add up to 50?

2 4 6 8 10 17 19 21 25

146 A correspondent writes 7 letters and addresses 7 envelopes, one for each letter. In how many ways can all of the letters be placed in the wrong envelopes?

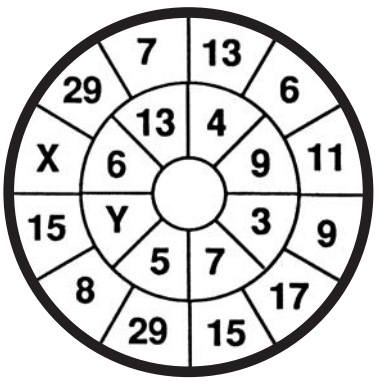
147 Which number in the bottom line belongs to the top line?

2	3	5	6	8	9	10	13
1	4	7	11	13	14	17	77

148 Which number in the bottom line comes next in the top line?

9	8	10	18	21	16	–
	14	15	20	27		

149 Give values for X and Y.



150 Every station on the railway system sells tickets to every other station.

Some new stations were added. 46 sets of additional sets of tickets were required.

How many new stations have been added? How many stations were there originally?

151 My friend had scored a hole in one.

There were 5 witnesses. Here is a list of their statements about which hole produced the amazing feat. It was an 18 hole course.

A Not an even number

B It had double digits

C The number was made up of only straight lines

D Not a prime number

E Not a square number

But only one statement was a true one.

Which hole was it?

152 What comes next in this series?

1 7 8 15 23 38 61 –

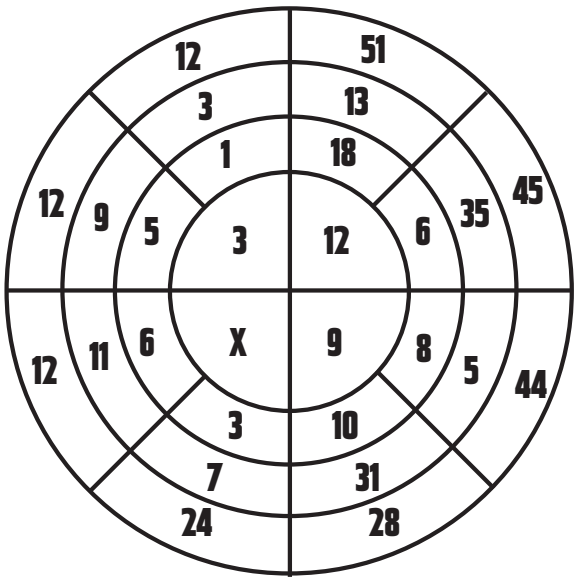
153 What number goes into the empty brackets?

98 (79) 126
105 (79) 135
48 (35) 80
34 ( ) 85

154 What are A, B and C?

$$\begin{array}{cccc} 3 & A & 6 & \\ C & 4 & B & \\ \hline B & 2 & B & A \\ \hline \end{array}$$

155 What is X?



156 What is X?

25 22 15 X 10 19 24

157 What are X and Y?

72 7 36 14 18 28 9 56 X Y

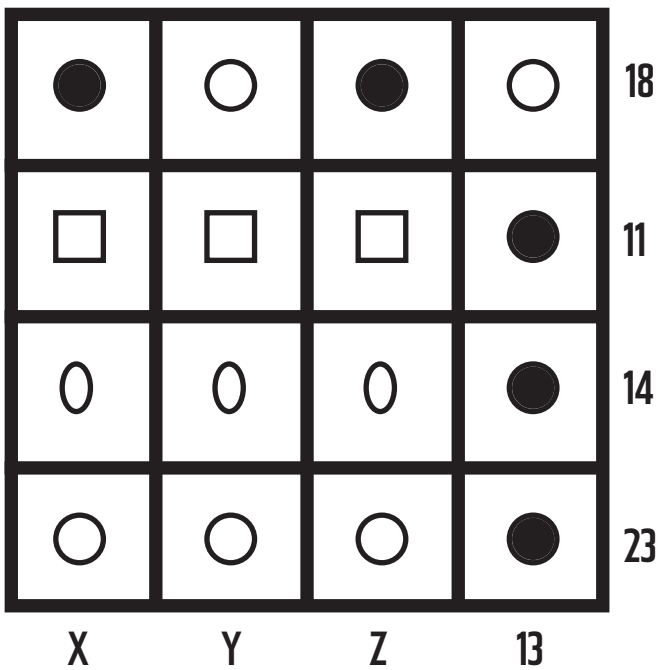
158 Which is the odd one out?

A.	**1**	**6**	**3**	**4**	**9**	**2**
B.	**6**	**14**	**3**	**8**	**1**	**2**
C.	**19**	**7**	**5**	**23**	**3**	**4**
D.	**1**	**9**	**4**	**7**	**3**	**2**

159 What is X?

X 11 1098 76 5 43 21

160 What are X, Y and Z?



161 Barbara visited her High School friend, Natasha after their 25th school reunion. "What a nice pair of children you have, are they twins?", Barbara asked.

"No my sister is older than I", said Natasha's son Philip. "The square of my age plus the cube of her age is 7148".

"The square of my age plus the cube of his age is 5274", said Matilda.

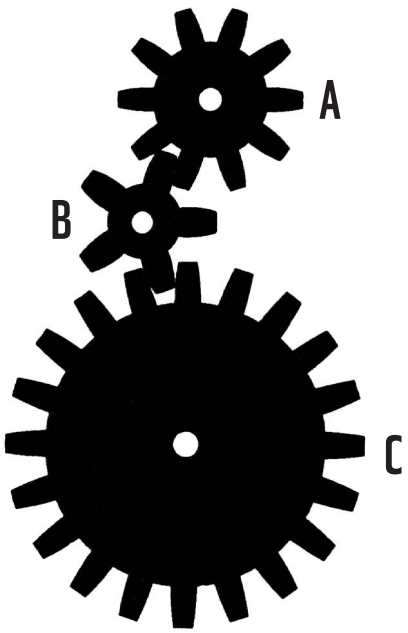
How old were they?

162 A train moving at 49 mph meets and is passed by a train moving at 63 mph. A passenger in the first train noted that the second train took 4.5 seconds to pass him.

How long is the second train?

163 What is the ratio between A and C?

A. 2 to 1
B. 4 to 1
C. 1 to 1
D. 5 to 1



164 A card player holds 13 cards of four suits, of which seven are black and six are red. There are twice as many hearts as clubs and twice as many diamonds as hearts. How many spades does he hold?

165 What is X?

131 517 192 X

166 Multiply the numbers that are midway between the lowest and highest numbers in A and B and subtract the midway number in C.

5	4	97
6	95	99
3	98	96

A

77	8	75
9	76	10
79	7	74

B

10	9	76
75	77	12
73	11	74

C

Answers

1 A 4, B 4
When correctly spaced they are:
A. 4 8 16 32 64 128
B. 19 38 76 152 304

2 808
Multiply the first two numbers in the preceding line;
multiply the next two numbers in the preceding line;
multiply the last two numbers in the preceding line

3 A is 9, B is 11, C is 8, D is 12
If the four corners are numbered:

1	2
3	4

the numbers in the four corners of the second overall square in each pair are as follows:

1+4	2+3
1+3	2+4

4 5
The numbers are the alphabetical positions of the letters, spelling FACADE:
6-F; 1-A; 3-C; 1-A; 4-D; 5-E.

5 D
D adds up to 36. The others add up to 33.

6 Turn the numbers upside down.
96
88
99
11
294

7 105

8 5 men, 10 children and 20 women
If x = the number of men, then x + 2x + 4x = 35
therefore 7x = 35
so x = 5

9	EVEN	ODD	PRIME	SQUARE	2 DIGITS	6-12
1		✔		✔		
2	✔		✔			
3		✔	✔			
4	✔			✔		
5		✔	✔			
6	✔					✔
7		✔	✔			✔
8	✔					✔
9		✔		✔		✔
10	✔				✔	✔
11		✔	✔		✔	✔
12	✔				✔	✔
13		✔	✔		✔	
14	✔				✔	
15		✔			✔	
16	✔			✔	✔	

1 is not a prime number
Square numbers are 1, 4, 9, 16

Only 4 ticks means 4 truths

So, 11 is the winner

10 ZERO
He had 3 white socks and 1 black sock in his drawer.
His chances were:

White socks	Mixed Pair	Black socks
$\frac{1}{2}$	$\frac{1}{2}$	ZERO

11 B and C
They become:
5 4 1
3 1 6
2 5 3

12 55706065
In the first line multiply the digits outside the brackets by 2 in this order: extreme left, extreme right, second left and first right. In the second line multiply by 3 and in the third line by 4, following the same procedure. Therefore in the fourth line multiply by 5 and follow the same procedure.

13 A The lead flautist took $^{1}/_{19}$ x 37 = 1 $^{18}/_{19}$
Plus $^{1}/_{19}$ = $^{1}/_{19}$ = 2 and so on
He felt aggrieved because he was left with the least.
B 37

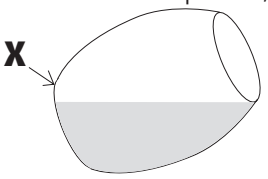
14 128
The consecutive numbers are: 9, 10, 11; 17, 18; 20, 21 and 22

15 1 6 2 7 8 4
The numbers putside the brackets are transposed inside the brackets in the same order as in the top line.

16 52
The results are increased by one and decreased by one alternately:
17 x 3 = 51 + 1 = 52

17 A +÷, B x÷ or ÷ x or - + or +-, C x -, D xx

18 He tilted the butt until the water came up to the top edge without any running over. As the level of the water did not reach point X the butt was not half-full. If it had reached point X, it would have been exactly half full.
But if point X had been submerged it would have been more than half full.



19 5 6 2 5
The first number inside the brackets is the square root of the number outside the brackets.
The remaining number inside the brackets is the square of the number outside the brackets.

20 Three sisters and two brothers
This can be solved by simple deduction, but if algebra is used let x be the number of sisters and y the number of brothers:

$x + 1 = 2y$
$y + 1 = x$
Therefore, $y + 1 + 1 = 2y$
so $y = 2$
or $x + 1 = 2x - 2$
so $x = 3$

21 53
37 is midway between 3 (the lowest number) and 71 (the highest number); 53 is midway between 37 and 69 (nearest to the highest number).

22 59
The first 56 balls could be of all colours *except* red. This would leave 8 balls, all of which are red, so any three chosen would be red.

23 2 8 9 4.
The two numbers on the right of the *previous* brackets are the numbers on the left inside the brackets; the numbers on the left of the *previous* brackets are the numbers on the right inside the brackets.

24

100.00	Won by	Money in Wallet
1st Hole	A	150.00
2nd	A	225.00
3rd	Tie	225.00
4th	B	112.50
5th	B	56.25
6th	B	28.12
7th	A	42.18
8th	A	63.27
9th	Tie	63.27
10th	A	94.90
11th	A	142.35
12th	B	71.18

It is good way to wager if the 2 players are equal standard, B will always win money if he ties or loses by a few holes, but if A wins by a large number of holes, he will win a fortune.

B, if he won every hole, could only win £100, but A could win a fortune.

25 1.2cm
The measurement is reduced by $\frac{1}{13}$ (four cards removed from 52).

26 10

$$\begin{array}{r} 70 \\ 75 \\ 85 \\ +\ 80 \\ \hline 310 \div 3 = 100 \text{ remainder } 10 \end{array}$$

3 subjects each student, 10 at least 4

27 6+10+13, 8+9+12, 5+6+18, 4+12+13, 8+10+11, 19+4+6, 11+6+12

28 87
The numbers are considered as moving clockwise in each successive large square. In each case they add to 100:
14 – 50 – 8 – 28
19 – 41 - 30 – 10
22 – 22 – 22 – 34
8 – 1 – 4 – 87 (X)

29 6380
The numbers inside the brackets are the squares of the numbers outside the brackets with 1 deducted. Alternatively, multiply 2, 4, 6 and 8 by 4, 6, 8 and 10 respectively and put the number at the end of the figure in the brackets, and multiply 3, 5, 7 and 9 by 1, 3, 5 and 7 respectively and put these numbers first.

30 12

	First face	Second face	Third face
1st move	1	2	6
2nd move	4	3	2
3rd move	6	5	1

31 Start the 7 and 11 min. hour glasses when the egg is dropped into the water when it is boiling. When the sand stops running in the 7 glass, turn it over. When the sand stops running in the 11 glass, turn the 7 glass again. When the sand stops again in the 7 glass, 15 mins. will have elapsed.

32 X = G, Y = H

33 E
All the others contain three consecutive digits.

34 The three throws do not have the same chances, because if the 1st throw scores a 6, the other 2 throws do not occur. So the first throw has the best chance.

1st throw $\frac{1}{6} = \frac{6}{36} = \frac{36}{216}$

2nd throw $\frac{1 \times 5}{6 \times 6} = \frac{5}{36} = \frac{30}{216}$ $\frac{5}{6}$ = 1st throw losing

3rd throw $\frac{1 \times 5 \times 5}{6 \times 6 \times 6} = \frac{25}{216}$

Total $\frac{91}{216} \times \$100$

= $42.13 stake

35 A is 3, B is 7, C is 4
There are several pointers to the solution; for example, in the last vertical column A cannot be 5, 6, 7, 8 or 9.

36 C
C results in 4; all the others result in 5.

37 26
Starting at the top left-hand corner and taking every fourth number, there are four series: 1, 2, 3, 4, 5, 6 (bottom left-hand square in centre section), 7, 8, 9; 2, 3, 4, 5, 6, 7 (bottom right-hand square in centre section), 8, 9, 10; 9, 8, 7, 6 (top left-hand square in centre section), 5, 4, 3, 2, 1; and 1, 3, 5, 7 (top right-hand square in centre section), 9, 11, 13, 15, 17.

38 1020
Multiply the first two numbers in the right-hand column and place the result in the left-hand column; multiply the last two numbers in the right-hand column and place the result in the left-hand column.

39 A Either 239 cats killed 4,649 rats
B or 4,649 cats killed 239 rats. (A) is the most likely answer

40 6
The series is spaced incorrectly. When the spacing is correct it becomes: 2 4 8 16 32 64 128 256, which is an obvious doubling-up series.

41 20
X, C and M are the Roman numerals 10, 100 and 1000 respectively. 1000 divided by 100 is 10; 100 divided by 10 is also 10.

42 147
Add the first two numbers and place the total on the left inside the brackets, then place the difference between the other two numbers on the right inside the brackets.

43 5
The numbers represent the alphabetic position of the letters; 1 is A, 4 is D etc. the word becomes ADUMBRATE with the addition of the final E. (One meaning of this word is 'to indicate faintly'.)

44 A 6, 1, 8, 6, 1, 8
B 7, 5, 3, 7, 5, 3
C 2, 9, 4, 2, 9, 4

A beats B twice
B beats C twice
C beats A twice

45 Company C
Company A made £800,000,000
Company B made £850,000,000
Company C made £875,000,000
Company D made £700,000,000

46 Their ages equalled 72
These are the possible ages:

72 – 1 – 1	The door number	74
36 – 2 – 1		39
24 – 3 – 1		28
18 – 4 – 1		23
18 – 2 – 2		22
12 – 6 – 1		19
12 – 3 – 2		17
9 – 4 – 2		15
8 – 9 – 1		18
8 – 3 – 3		14
6 – 6 – 2		14
6 – 4 – 3		13

The census taker did not know their ages because there were 2 totals of 14.
The door number was 14, so the total was 14
8 – 3 – 3
6 – 6 – 2
There was an oldest girl so it must have been 8 – 3 – 3

47 £61

48 5040
Multiply each number by 2, 3, 4, 5 and 6 and (finally) 7.

49 X is 193; Y is 63
In the outer ring, starting with the lowest number, each number is doubled and 1 subtracted from the result. In the inner ring, starting with the lowest number, each number is doubled and 1 added to the result. (Alternatively, in the outer ring, the progression is 3, 6, 12, 24, 48 and 96; in the inner ring the progression is 2, 4, 8, 16, 32).

50 A is 4; B is 20; C is 5; D is 2
Add the numbers from top to bottom diagonally to the left of the bottom line for the first three positions on the bottom line, and to the right for the next three positions.

51 A is 2; B is 11; C is 5
The bottom line totals 19; the next line up totals 18; then 17. Hence 16, 15 and 14.

52 One of the pockets, though not the one it started from.

53 4

54 29
The odd numbers in A total 39; the even numbers in B total 40. From this combined total of 79 is subtracted 50 – the total of the prime numbers in C.

55 X is 2; Y is 8

56 No number plate begins with o, so whether a number plate contains 1, 2, 3, or 4 digits Freddie has an advantage.

57 $\frac{9 \times 8 \times 7 \times 6 \times 5}{1 \times 2 \times 3 \times 4 \times 5} = 3528$ $\quad$ $\frac{8 \times 7 \times 6 \times 5 \times 4 \times 3}{1 \times 2 \times 3 \times 4 \times 5 \times 6}$

58 17

59 D F B C E
The letters must be transposed in the same order as the numbers.

60 C
The digits add up to 19. In all the others the total is 18.

61 1416
In the first example, divide the left-hand number by 4 and the right-hand number by 5.
In the second example, divide the left-hand number by 6 and the right-hand number by 7.
Therefore, in the third line, divide the left-hand number by 8 (14) and the right-hand number by 9 (16).

62 18
All the others are divisible by 4

63 Oswald (lost £2401) is married
to Betty (won £2601)

Ernie (lost £529) is married
to Alice (won £729)

John (lost £25) is married
to Marjorie (won £225)

64 729

Squares 13-499	16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225, 256, 289, 324, 361, 400, 441, 484
Squares 500-1300	529, 576, 625, 676, 729, 784, 841, 900, 961, 1024, 1089, 1156, 1225, 1296
Cubes 13-499	27, 64, 125, 216, 343
Cubes 500-1300	512, 729, 1000
Both	64, 729

Possible true answers:

No 1 and 2)
No 1 and 3)
2 and 3 – Yes, over 500 there is a cube and a square (729)

65 X is 6; Y is 1
Starting at number 1 and moving to alternate segments clockwise:
1 2 3 4 5 6
Starting at number 6 and moving in the same way:
6 5 4 3 2 1

66 E
Adding up each column:
Column A = 75
Column B = 80
Column C = 85
Column D = 90
Column E = 96
Column F = 100

67 16061

68 3020
The first 2 digits on the right of the brackets are divided by the digit on the left to gve the first digit inside the brackets. The remaining number on the right of the brackets is multiplied by the digit on the left of the brackets to give the remaining number inside the brackets.

69 2
The first column totals 9. The second column totals 10. This pattern continues, so the final column should total 13, by the addition of 2.

70 X is 4; Y is 11
Two alternate series
Starting with the first number: 7 6 5 4 3
Starting with the second number: 8 9 10 11 12

71 15
All the others are prime numbers.

72 No player could have achieved a five digit total. There are no four digit prime palindromic numbers. There are only 15 three digit prime numbers which are palindromic, and one two digit prime palindromic number 11. The total is 7104 divided by 16 equals an average of 444.

73
A x = 9. The figure in the third square across is the sum of the figures in the preceding two squares.
B x = 14. In the first row across the numbers increase by 3 and 4; in the second row by 4 and 5. Therefore, in the third row they should increase by 5 and 6.
C x = I. This is similar to the previous example, except that letters are used instead of numbers. In the first row the letters advance, skipping 3 and 4 places respectively. In the second row they should advance, skipping 4 and 5 places, so as to conform with the third row, in which the letters skip 5 and 6 places.

74 85
In the first row, the numbers outside the brackets are divided by 16 and the results placed inside the brackets. In the second row they are divided by 17. Therefore, in the third row they are divided by 18.

75 X = 129. In the outer ring, moving clockwise, each number is doubled and 1 subtracted from the result.
Y = 39. In the inner ring, moving clockwise, each number is doubled and 1 added to the result.

76 8— cigarettes.

77 2, 3, 12 – These losing numbers have been decided by the gambling authorities and apply worldwide.

78 81

79 Car 1 goes into road B, because 17 goes into 136;
Car 2 goes into road C, because 81 goes into 567
Car 3 goes into road A, because 27 goes into 243

80 They are both the same distance from Sheffield *when they meet* !

81 59
Proceeding from top to bottom along the rows from left to right, add the two previous numbers and add 1, then add the two previous numbers and subtract 1, and so forth, adding 1 and subtracting 1 alternately. Thus the two numbers previous to the blank square are 22 and 38. These are added together, giving 60, and 1 subtracted from the total.

82 S19
There are two separate series. The letters advance missing first two (A to D), then three (D to H) and so on. After M there must be five missing letters, bringing us to S. The numbers advance in the same way.

83 X is 4; Y is 11
There are two alternate series. One is:
7 6 5 4
The other is:
8 9 10 11

84 D
As 1764 was a leap year, there were 29 days in February, so it would be Saturday 10 NOT 11 March.

85 25' x 25'
15' x 15'

86
1 5.5 KG
2 6.5 KG
3 7 KG
4 4.5 KG
5 3.5 KG

87 6

88 X is 9; Y is 15
There are two separate series. Starting with the first number and taking the others alternately:
1 3 5 7 9
Starting with the second number and proceeding in the same way:
3 6 9 12 15

89 112

90 3
The numbers following the letters correspond with the position in the alphabet of the letters.

91 16
4 is the square of 2; 9 is the square of 3; 25 is the square of 5; x must be the square of 4 (16).

92 448

93 Yes
True odds are $^{1}/_{1828}$

94 A
With the exception of the digits in A, which add up to 13, the digits in all other dates add up to 12.

95 13
Change the Roman numerals into modern numbers:
208 104 52 26

Each one is half the previous number. therefore the next number is 13, expressed in modern numerals to conform with the established pattern.

96 D
D equals 3; all the others equal 4

97 12

98 21 The numbers increase by 3, 4, 5, 6 and 7

99 A = 98
B = 126
In the first row the numbers outside the brackets are divided by 12 and the results placed inside the brackets; in the second row they are divided by 13; thus, in the third row the numbers inside the brackets are multiplied by 14 to obtain a and b.

100 A: 12 (Each number doubles its opposite lower number and adds two.)
B: 25 (Each number doubles its opposite lower number and adds three.)

101 A = 7
B = 8
From the music shown the following can be deduced:

after  comes

after  comes

after  comes

after  comes

102 You can only travel south from the North Pole!

103 A = 9 B = 2
The first row across totals 15; the second row 16; the fifth row 19 and the bottom row 20. Thus, the total increases by one in each successive row.

104 Take any 100 digits in a random number sequence. Write down all the differences between every pair of digits, you will have 99 digits. Take every possible difference in the digits, you will find 100.

Such as

0-0	1-0	0-3	1-3
0-1	1-1	0-4	1-4
0-2	1-2 etc.		

Add the differences $\frac{330}{100} = 3.3$

105 6,561
There are two sequences arranged alternately. In each sequence the number is the square of the previous number in that sequence. 6,561 is the square of 81.

106 A ½ revolution
B 2½ revolutions.

107 86
Add five straightdown; Add ten sideways; Add fifteen diagonally.

108 4,12

109 11
(6 x 11) - 24 = 90

110 2.50

111 They were playing darts in the Club House.

112 13

113 31

114 140
Starting with 3 in the upper half, the number in the opposite segment multiplies it by 2.
The next number (7) is multiplied by 3; then by 4, and so on.

Therefore 20 is multiplied by 7 to give 140.

115 16
Each number reverses the previous number and adds 1 to each digit. Thus, in the first two terms, 16 reversed is 61, which then changes to 72. In the penultimate term, 50 reversed becomes 05, which in turn becomes 16 – by adding 1 to each digit.

116 A 7; B C

	Black ball	White ball
1st move	D	A
2nd move	E	F
3rd move	F	D
4th move	G	B
5th move	A	G
6th move	B	E
7th move	C	C

117 5
Columns headed by an odd number add up to 30. Columns headed by an even number add up to 40. The last column adds up to 35, to which must be added 5 to bring it up to 40, as this column is headed by an even number.

118 x is 11; y is 61
In the first circle the number in the top left quarter is squared and then reduced by 1 in the opposite diagonal quarter; the number in the top right quarter is cubed and then 1 added to give the number in the opposite lower quarter.
In the second circle the same procedure is followed except that 2 is deducted from the squared number and 2 is added to the cubed number.
Therefore, in the third circle 3 is deducted from the square of 8 (64 becomes 61 – the value for Y), while 3 is added to the cube of 2 (8 becomes 11 – the value for X).

119 X is 9 or 24; Y also is 9 or 24
In each case the numbers at the top are divided by 4 in the opposite quarter and 1 is added.
An alternative solution is that the numbers in the lower quarters are miltiplied by 4 in their opposite quarters and 4 is deducted from the result.

120 1
The numbers reduce by 17, 34, 68, 136, 272 and hence – 544 thus reducing the previous number – 545 by 1. (The terms reduce in multiples of 17.)

121 5-1 Against

		Amount to be staked to recover £100 including stake	
2-1	1	£ 33.3	
3-1	2	25	
4-1	3	20	
5-1	4	16.6	
6-1	5	14.3	
	6	?	
		109.3	
5-1	6	16.6	Add horse No. 6
		125.9	

Whichever horse wins he gains 125.9% as long as he has balanced his books.
(He receives £125.90 and pays out £100.00. His profit is, therefore, £25.90.)

122 40
Add half the number on the left to its square root and arrive at the number on the right. Alternatively, the left hand column from top to bottom follows the progression of adding 5, 7, 9, 11, 13 and 15, while the right hand column adds 3½, 4½, 5½, 6½, 7½ and finally 8½, bringing the last number to 40.

123 9
The totals in the bottom quarters are half those in the opposite top quarters.

124 8
Starting with the two segments above x, the sum of each part in the upper semi-circle is the same as its corresponding pair in the lower semicircle.

125 18 ÷ 2 x 9 + 24 - 5 = 100

126 33

127 Take reciprocal, i.e. divide into 1

4 hrs	=	1/4	= .25
5 hrs	=	1/5	= .20
6 hrs	=	1/6	= .166
8 hrs	=	1/8	= .125
			.741

Take reciprocal again $\frac{1}{.741}$ = 1 hr 21 mins

128 200m would only take 199 cuts not 200.
199 x 4 sec = 13.27 mins

129 Numbers 1, 5 or 17

130 18, 12 and 8

131 D
As the black blocks are farther from the fulcrum the see-saw should go down on the right.

132 X is 108; Y is 48.
There are three series, taking every third term:
3 6 12 24 48 (Y) (multiply by 2)
7 21 84 420 (multiply by 3, 4 and 5)
4 12 36 108 (X) (multiply by 3)

133 A
The area of the circle (based on the formula: multiply the square of the radius by 3.14 approx) is 3.97 square inches.
A is 4 square inches (the nearest)
B is 4.41 square inches
C is 3.80 square inches
D is 3.78 square inches

134 A 36
B 4
C 9
D 35
E 24

135 6591
1
x 1
x 1
x 3
x 13
x 13
x 13 = 6591

136 14
The results are as follows:
1st throw 6 8
2nd throw 4 14
3rd throw 3 10
4th throw 1 8
5th throw 2 12
6th throw 6 20
7th throw 5 14

137 216225
Square the number on the left outside the brackets and place the result on the right inside the brackets, then cube the number on the right outside the brackets and place the result on the left inside the brackets. Repeat this procedure throughout, so the last line is 225 (15 squared) and 216 (6 cubed).

138 C

139 X is 7; Y is 9
Although this can be solved by elimination, it can also be solved by algebra:
from the bottom line:
$y = 2 + x$

substituting this in the first line:
$2x - (2 + x) = 5$

hence:
$2x - 2 - x = 5;$

or:
$x - 2 = 5,$

therefore:
$x = 7$

substituting this in the second line:
$7 + y = 16$

therefore:
$y = 9$

140 16
Each number in the bottom row is the sum of the number above it and the previous number.

141 Twice as large

142 201 (add digits to previous number)

143 947 x 947 apples

144 125
96 passes out of 125 give an average of 76.8%

145 Here are nine possible combinations:
6 19 25;
8 17 25;
10 19 21;
4 21 25;
2 6 17 25;
2 4 19 25;
2 10 17 21;
4 10 17 19;
4 8 17 21.

146 1854
According to this mathematical formula: $7!\,(1/2! - 1/3! + 1/4! - 1/5! + 1/6! - 1/7) = 1854$

147 13
All the numbers in the top line contain curves. The only one in the bottom line is 13, as all the others consist of straight strokes.

148 27
In the top line the first number, 9 is divisible by 3; 8 is divisible by 4; 10 is divisible by 5; 18 is divisible by 6; 21 is divisible by 7; 16 is divisible by 8. hence the next number must be divisible by 9, and the only number that complies with this is 27.

149 X is 15; Y is 11
In the outer ring, going clockwise from 7, each number doubles the previous number and subtracts 1. hence x (coming before 29) must be 15. In the inner ring, each number doubles the previous number and adds 1. Hence y is 11 (double 5 plus 1).

150 2 new stations
11 existing stations

151 Hole No. 2.
Analyse the statements.

Hole No.	A	B	C	D	E
14	✔		✔	✔	✔
2					✔
3	✔				✔
4			✔	✔	
5	✔				✔
6				✔	✔
7	✔		✔		✔
8				✔	✔
9	✔			✔	
10		✔		✔	✔
11	✔		✔		✔
12		✔		✔	✔
13	✔				✔
14		✔		✔	✔
15	✔			✔	✔
16		✔		✔	
17	✔		✔		✔
18		✔		✔	✔

Only one tick means a true statement.

152 99
After the first two terms each subsequent term is the sum of the two previous terms.

153 25
In the first row divide the numbers outside the brackets by 14 and put the results inside the brackets. Continue in th esame way, but next dividing by 15 and then by 16. In the last row divide by 17.

154 A is 7, B is 1, C is 8
With a four-figure total, the calculation is obviously addition and not subtraction. In order to reconcile the units with the tens. B must be 1 (the units total 7), so that 7 added to 4 in the tens gives 11, confirming that B is 1 (also confirmed in the final total). to give 2 in the final total, C must be *, so that the hundreds came to 12.

155 $4^1/_2$ or 4.5
In each quarter halve each total of the rings up to and includiong the centre. Thus, in the bottom left quarter: 24 plus 12 = 36, 11 plus 7 = 18, 6 plus 3 = 9. Therefore x = 41½ or 4.5.

156 4
The first term is follwed by the last term; the second term is followed by the penultimate term, and the third term follows the same procedure. Thus the series becomes: 25 24 22 19 15 10 4(x) – ie: decreasing by one more each time: -1 -2 -3 -4 -5 -6(x)

157 x is 4½ or 4.5, y is 112
Halve the terms alternately from the first term: 72 36 18 9 41/2 or 4.5(x). Double the terms alternately from the second term: 7 14 28 56 112(y).

158 D
Add the numbers and then add the remaining digits: A – total of numbers is 25, 2 plus 5 = 7; B – total of numbers is 34, 3 plus 4 = 7; C – total of the numbers is 61, 6 plus 1 = 7; D – total of the numbers is 26, 2 plus 6 = 8.

159 12
The series must be read backwards and spaced correctly: 1 2 3 4 5 6 7 8 9 10 11 12(X).

160 X is 16; Y is 21; Z is 16
To justify the right hand vertical row with the top row, • must be 2. Substituting this in the remiaining horizontal rows, it becomes obvious that (DIAGRAM) must be 3, (DIAGRAM) must be 4 and, in the bottom row (DIAGRAM) must be 7. The values for X, Y and Z now become clear.

161 Matilda 19
Philip 17

162 $\frac{5289 \times (49 + 63) \times 4.5}{60 \times 60}$
= 740.46 ft

163 A
Pinion A has 10 teeth. Pinion C has 20 teeth. Therefore the ratio between them is exactly 2:1, which is obtained by dividing the larger by the smaller. In other words, pinion A will make two revolutions while pinion C makes one. The number of teeth on the intermediate pinion does not in any way alter the ratio between the other two.

164 6
The player holds 1 club, 2 hearts and 4 diamonds. As he holds 13 cards (or seven black cards), it follows that there must be 6 spades.

165 1
Spaced correctly, the series becomes 13 15 17 19 2(1)

166 2,150
51 is midway between 3 and 99; 43 is midway between 7 and 79; 51 x 43 = 2,193, less 43 (midway between 9 and 77) = 2,150

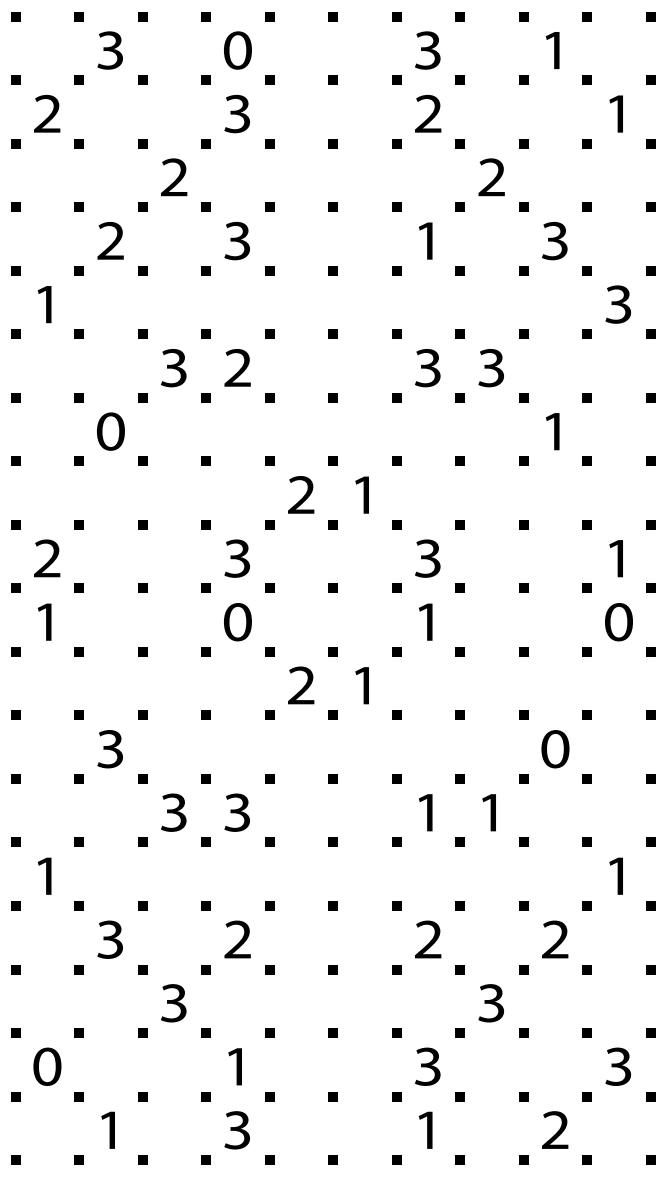
1 Sudoku

9			7		6			1
6								2
		4	2		8	3		
3		1	6		2	8		4
		2				6		
4		8	9		5	7		3
		9	5		3	1		
8								5
5			4		7			8

2 Sudoku

	9	7	1		4	6	5	
		3	6	8	9	7		
6			7	1	5			4
3								9
4			3	9	2			6
		8	9	3	6	2		
	6	1	2		7	8	3	

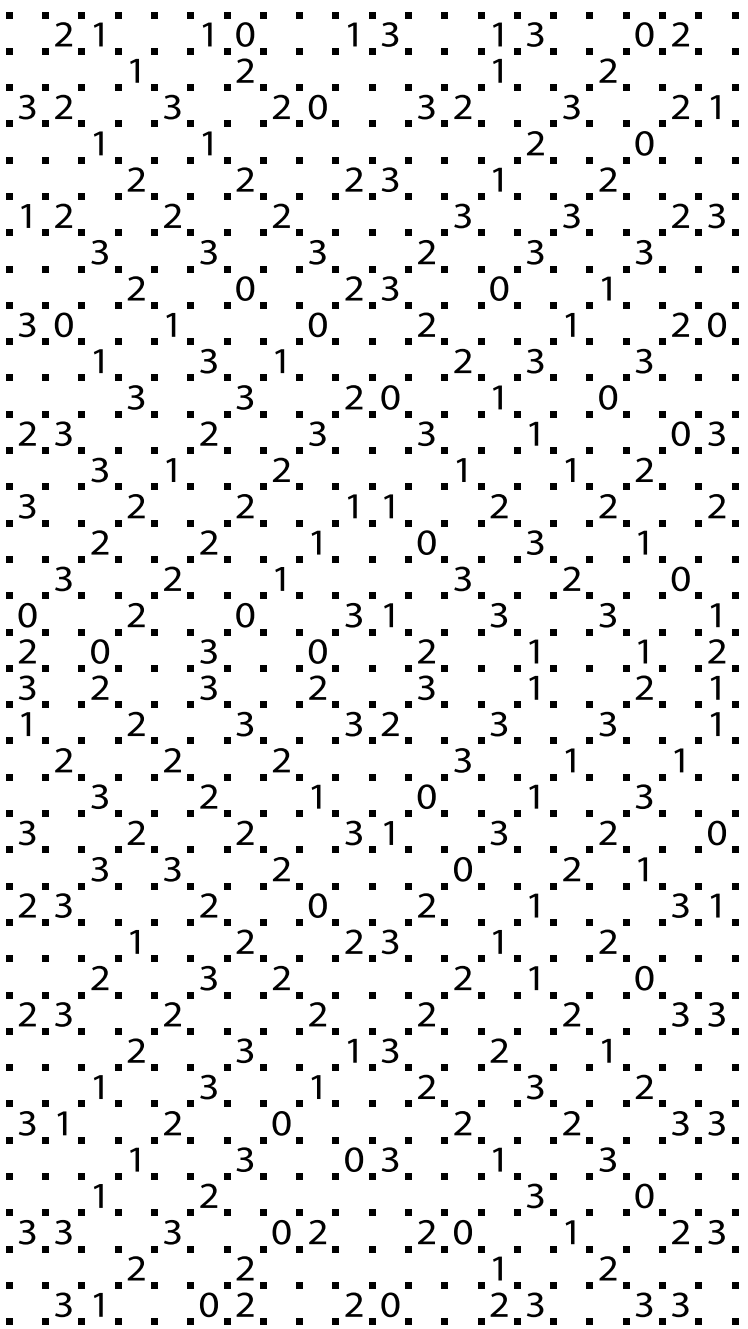
3 Slitherlink



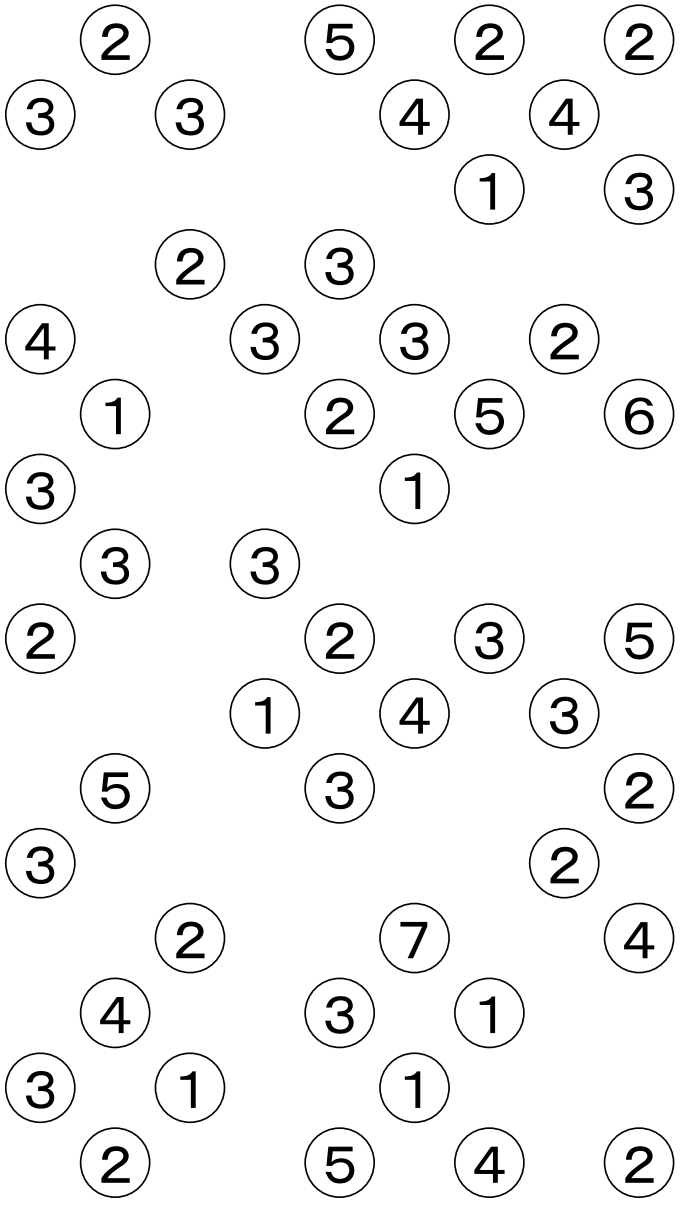
4 Sudoku

				3	4	1	2	
		4	2	1	7		5	6
1		9	7			4	3	
	4		6	8				
8		5	9			6	7	
		8	1	2	6		4	3
				7	8	9	6	

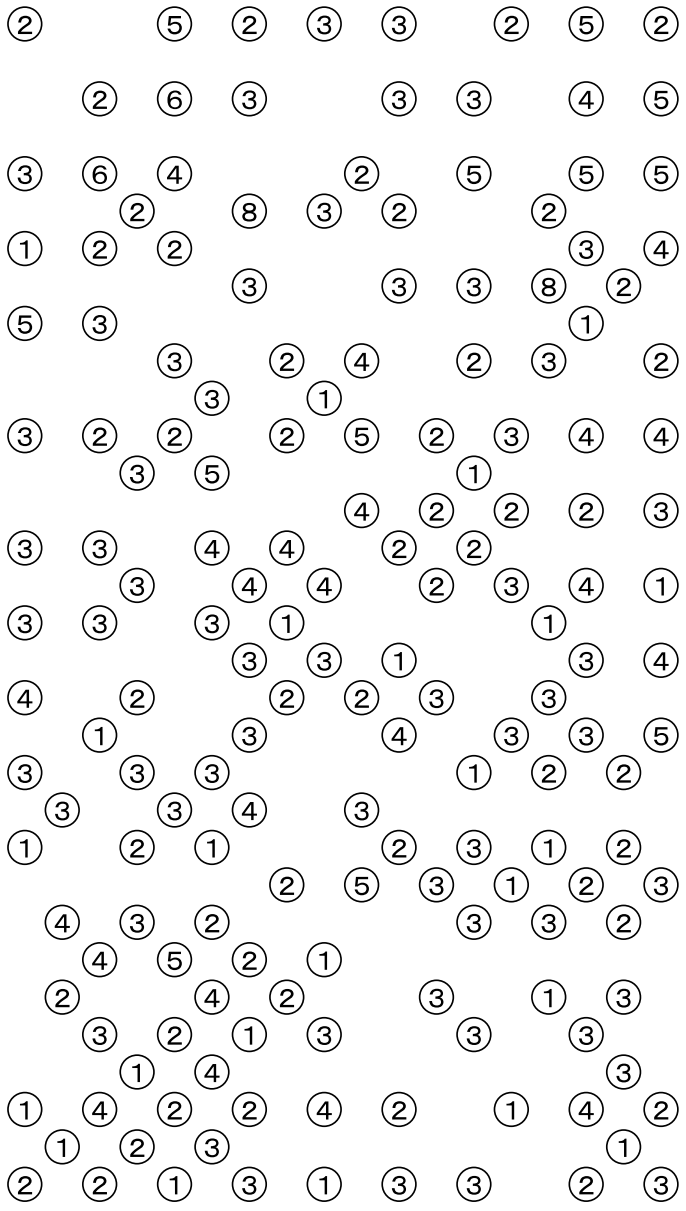
5 Slitherlink



6 Bridges



7 Bridges

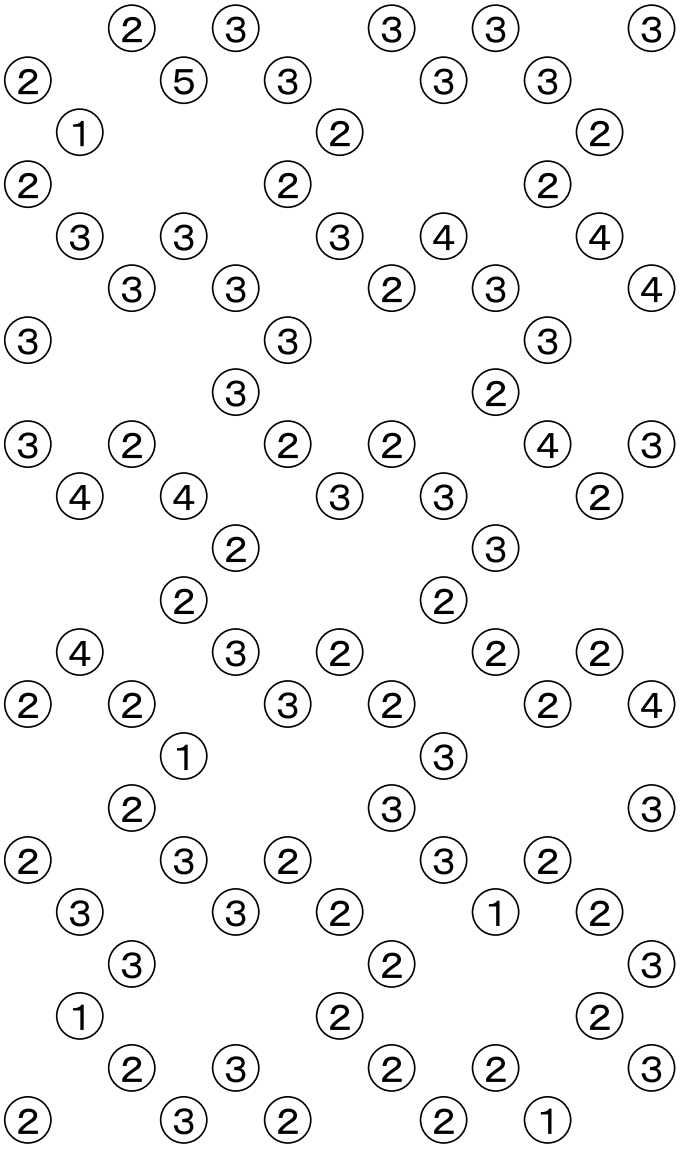


8 Slitherlink

9 Sudoku

1								6
4		3		2		8		7
		2	7		8	5		
	6		2	7	3		5	
	2		9	1	6		7	
		8	4		7	9		
7		9		8		6		1
5								2

10 Bridges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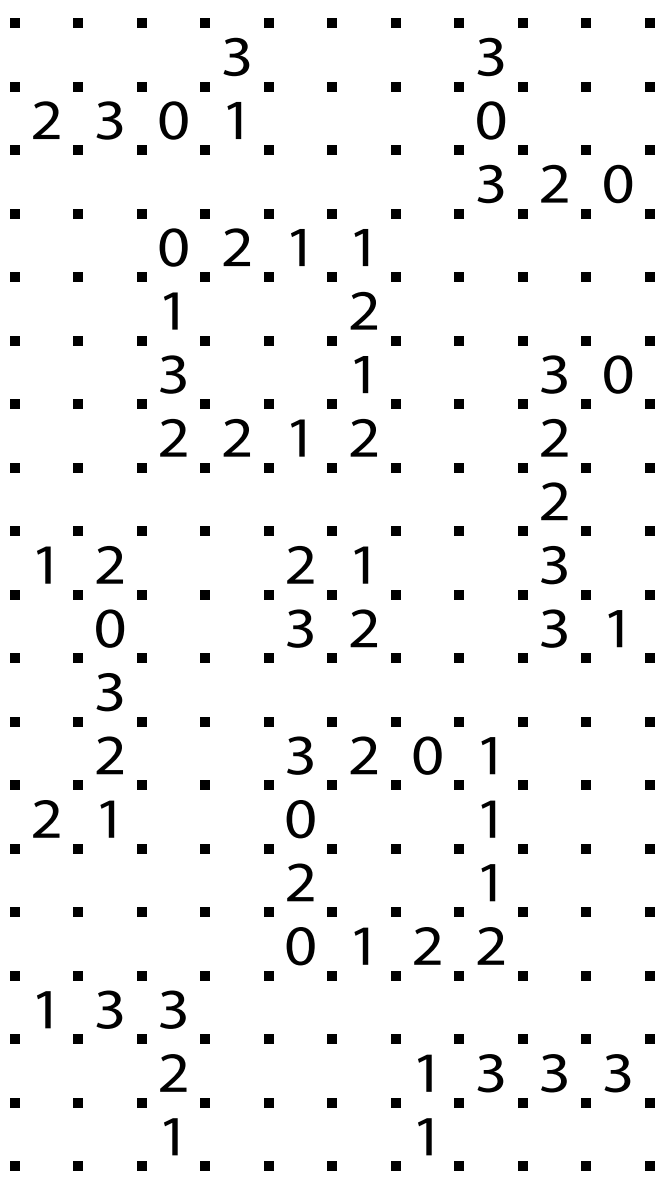
2 5 3 3 3
1 2 2
2 2 2
3 3 3 4 4
3 3 2 3 4
3 3 3
3 2
3 2 2 2 4 3
4 4 3 3 2
2 3
2 2
4 3 2 2 2
2 2 3 2 2 4
1 3
2 3 3
2 3 2 3 2
3 3 2 1 2
3 2 3
1 2 2
2 3 2 2 3
2 3 2 2 1

11 Sudoku

7	2						3	5
8								6
		9	5	3	8	4		
	7		9		5		4	
			2		6			
	4		3		1		5	
		2	7	9	3	5		
5								4
6	8						2	3

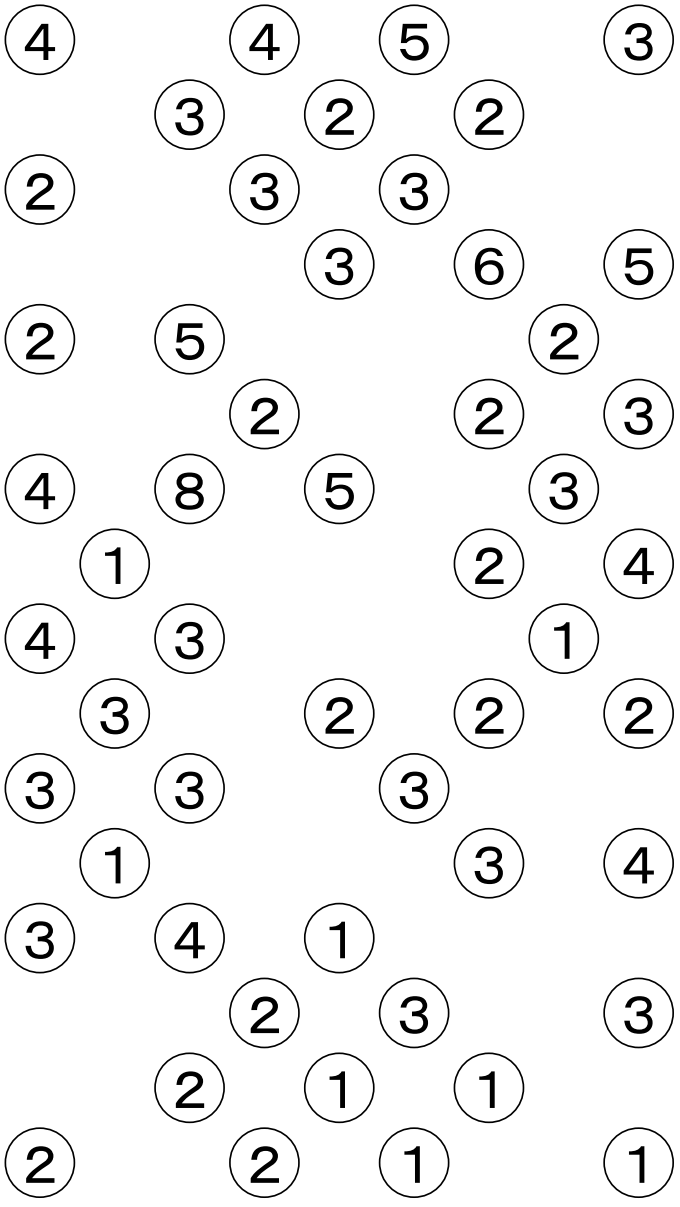
12 Slitherlink



13 Sudoku

		8						7
		3			7		2	6
4	7					3		
				4				
			6		9		1	
	6			5		7	3	
		1			2			
	4			7	3			5
9	2						4	

14 Bridges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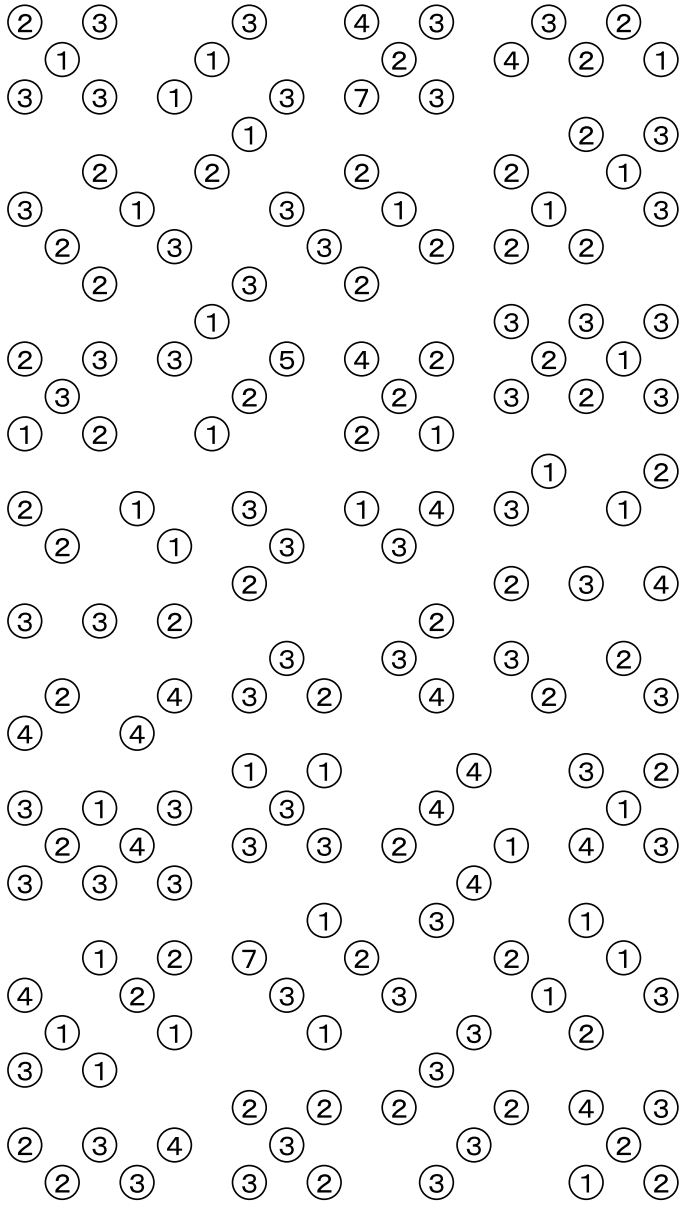
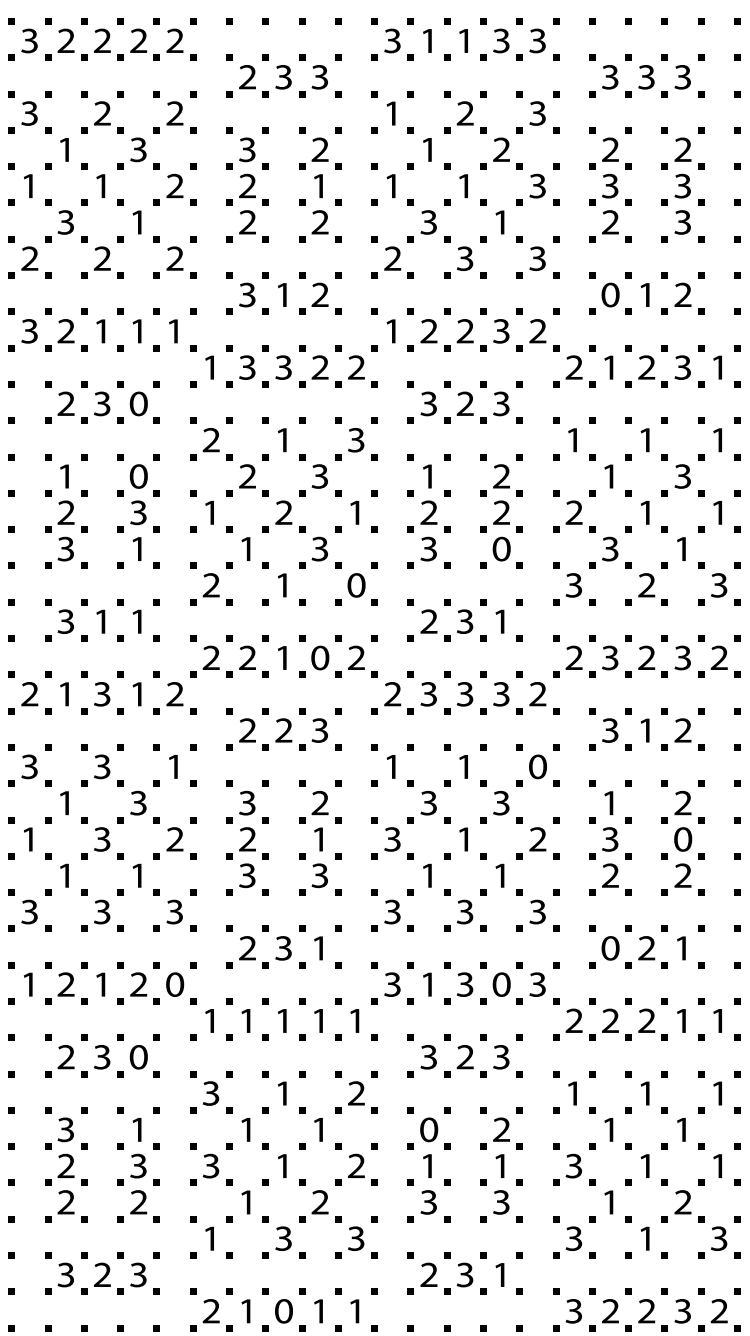
3 2 2
2 3 3
3 6 5
2 5 2
2 2 3
4 8 5 3
1 2 4
4 3 1
3 2 2 2
3 3 3
1 3 4
3 4 1
2 3 3
2 1 1
2 2 1 1

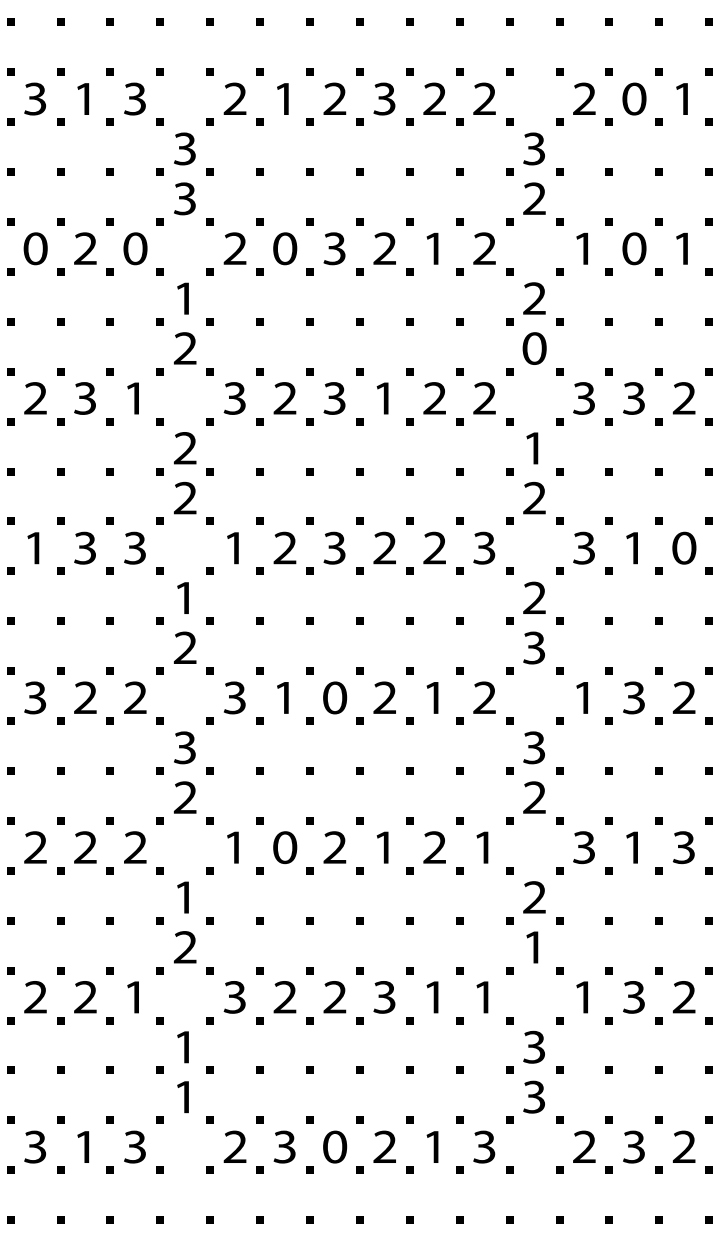
15 Bridges



16 Slitherlink



17 Slitherlink



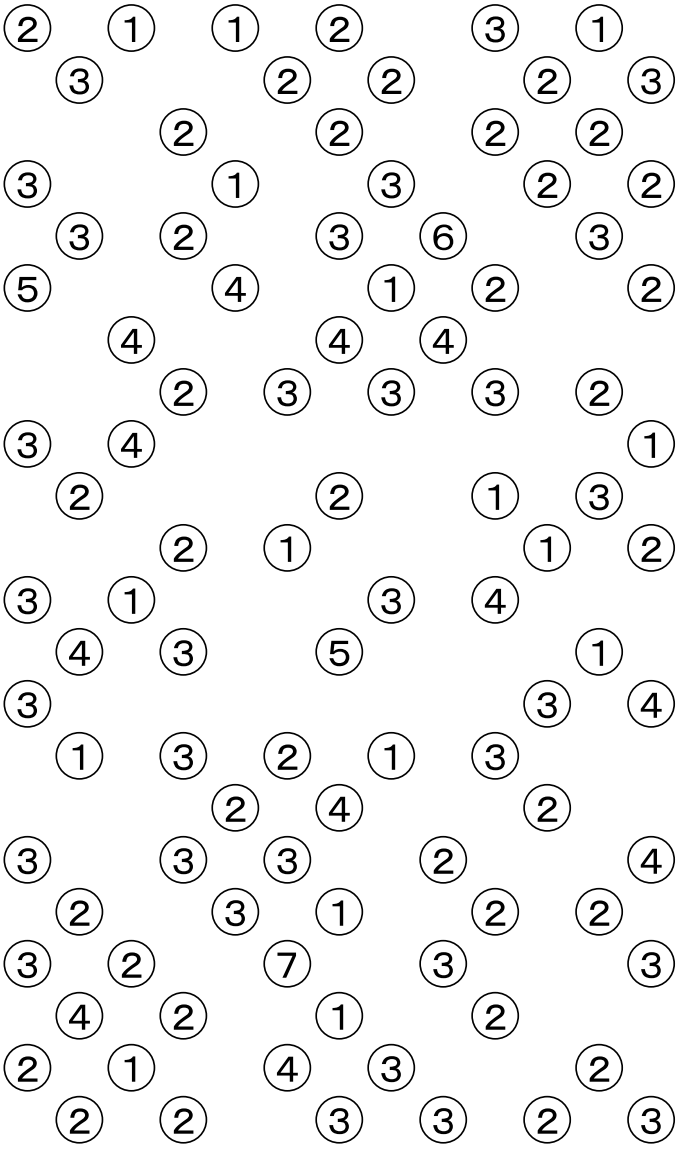
18 Sudoku

		7						
	6			9		2		
			7		6			8
		5			4		2	7
	9	4	1	2		6		
		2			3		5	9
			3		1			5
	1			4		7		
		3						

19 Sudoku

			9		3			
		8	1	5	7	2		
	4			6			9	
5	2			3			7	8
	7	1	5		8	6	2	
6	8			7			5	9
	3			2			6	
		5	6	8	4	7		
			3		9			

20 Bridges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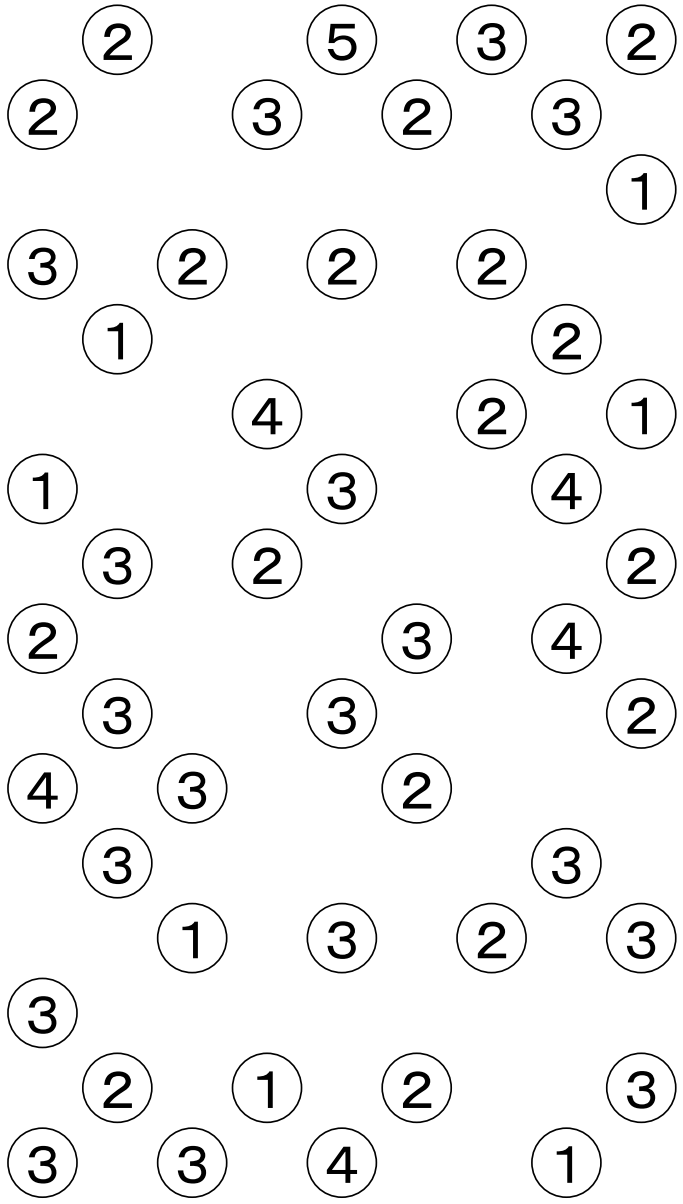
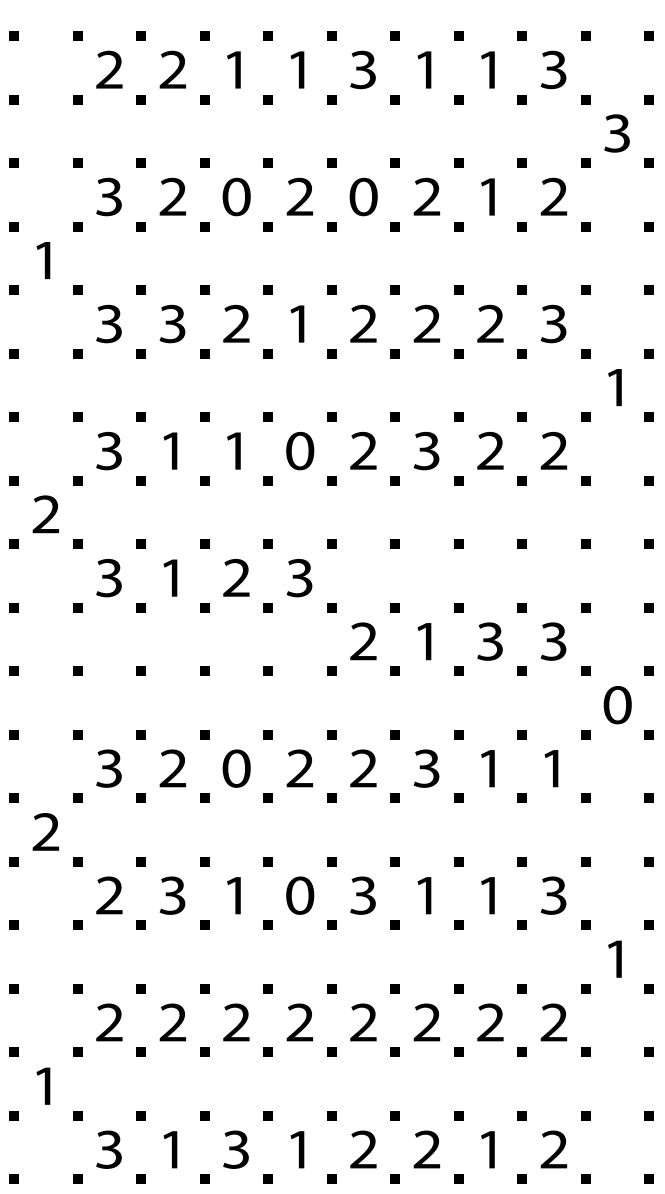
3 2 2 2 3
2 2 2 2
3 1 3 2 2
3 2 3 6 3
5 4 1 2 2
4 4 4
2 3 3 3 2
3 4 1
2 2 1 3
2 1 1 2
3 1 3 4
4 3 5 1
3 3 4
1 3 2 1 3
2 4 2
3 3 3 2 4
2 3 1 2 2
3 2 7 3 3
4 2 1 2
2 1 4 3 2
2 2 3 3 2 3

21 Bridges



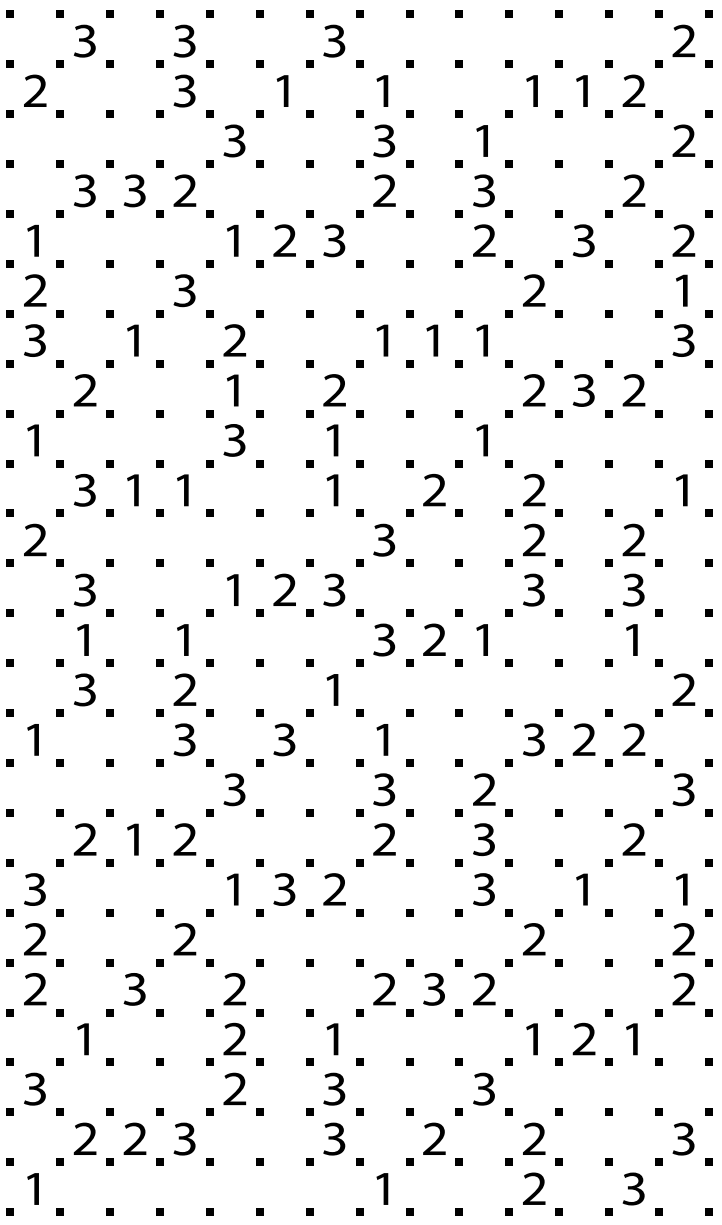
22 Slitherlink



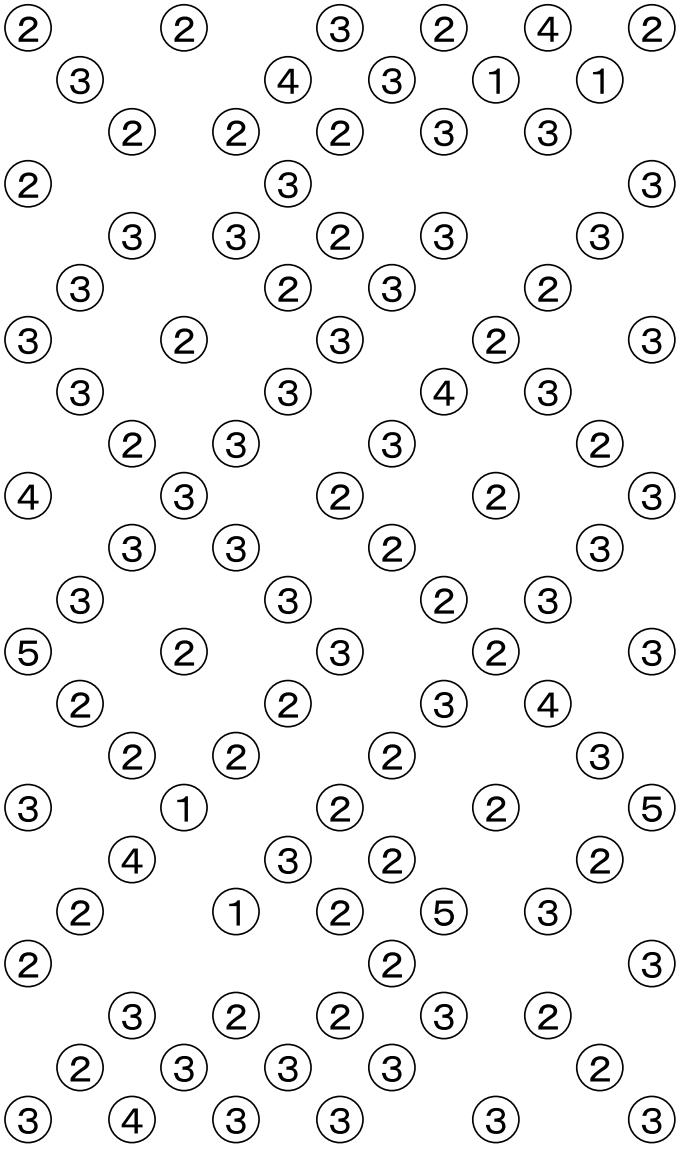
23 Sudoku

		4						
7				6	4			
8	6	9	5					
		2					1	
	4	6					7	
9		5	3			6		
	1		4	3	7	9		6
		3		9		1		
			8			4	3	

24 Slitherlink



25 Bridges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3 4 3 1 1
2 2 2 3 3
2 3 3
3 3 2 3 3
3 2 3 2
3 2 3 2 3
3 3 4 3
2 3 3 2
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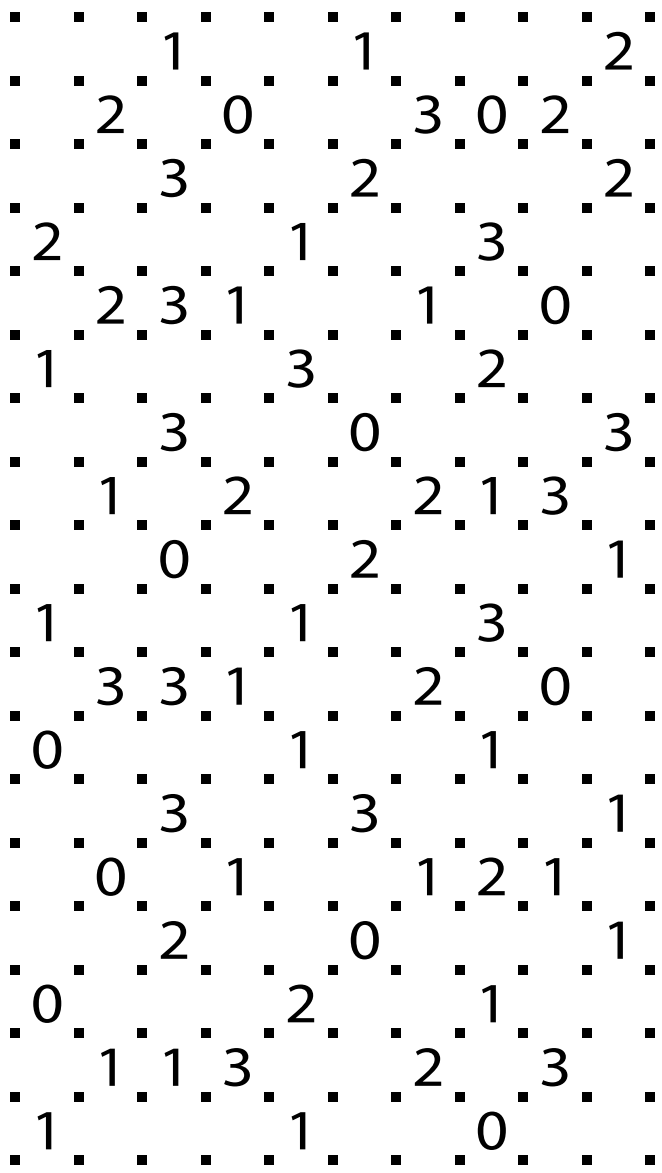
3 3 2 3
3 3 2 3
5 2 3 2 3
2 2 3 4
2 2 2 3
3 1 2 2 5
4 3 2 2
2 1 2 5 3
2 2 3
3 2 2 3 2
2 3 3 3 2
3 4 3 3 3 3

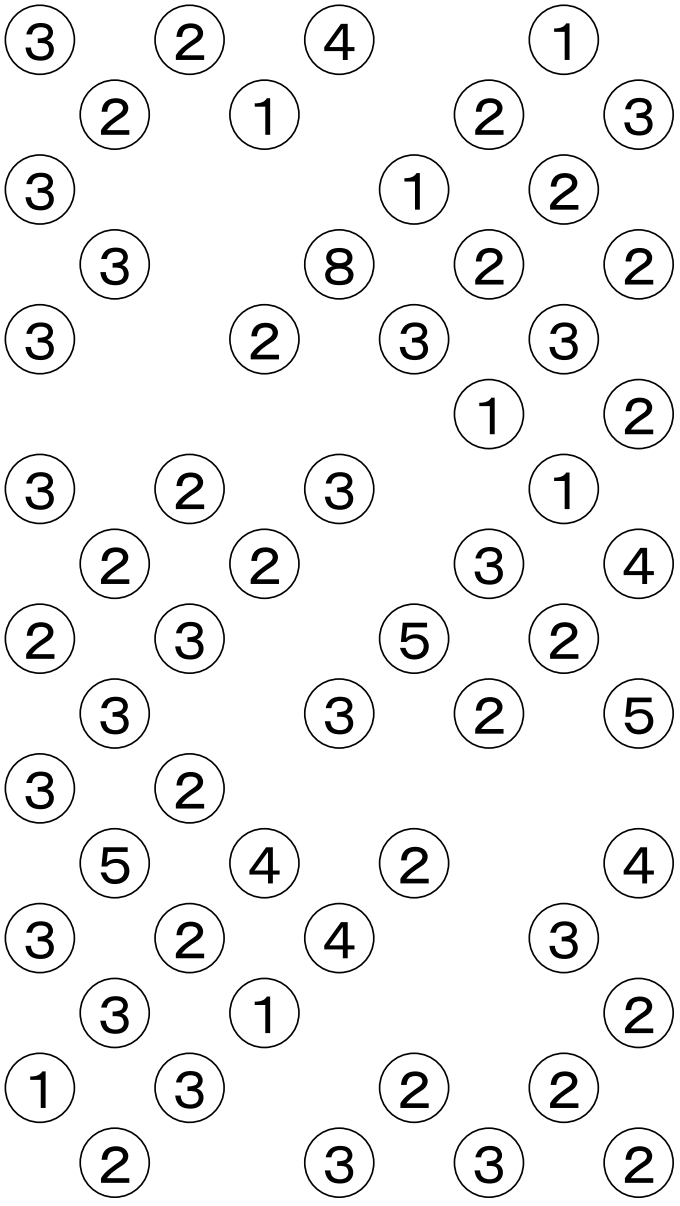
26 Sudoku

					5			
	4							5
		9	7		8	3		2
		4					7	3
	8		6		3		1	
1	3					9		
8		7	4		2	5		
4							6	
			3					

27 Slitherlink



28 Bridges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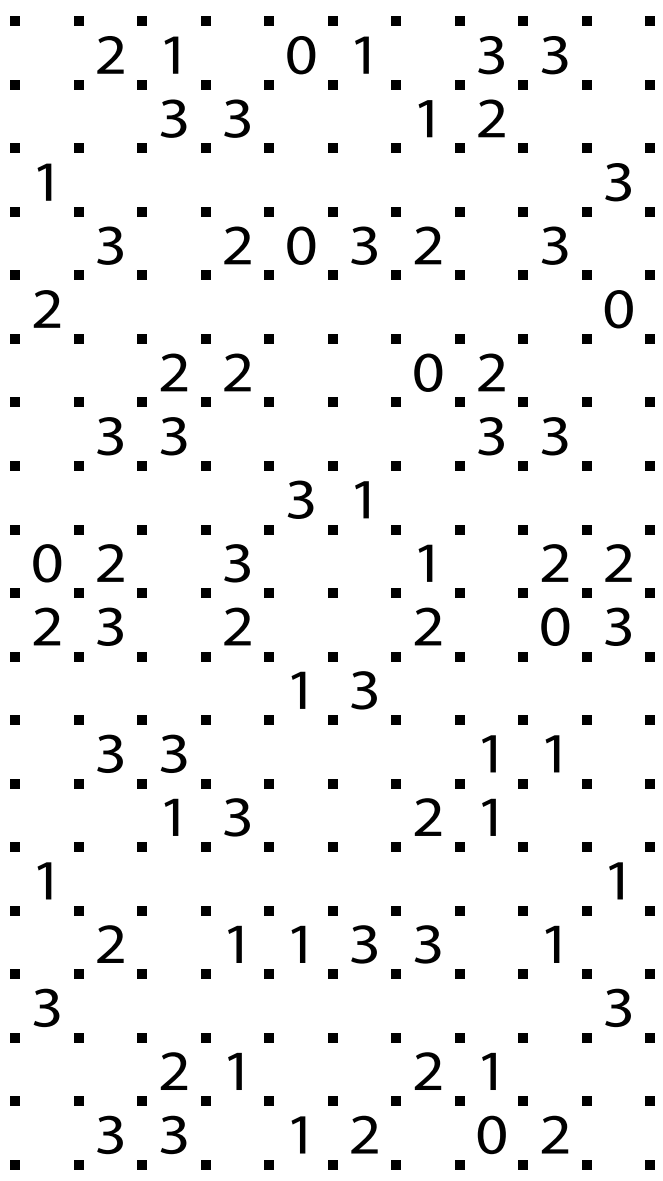
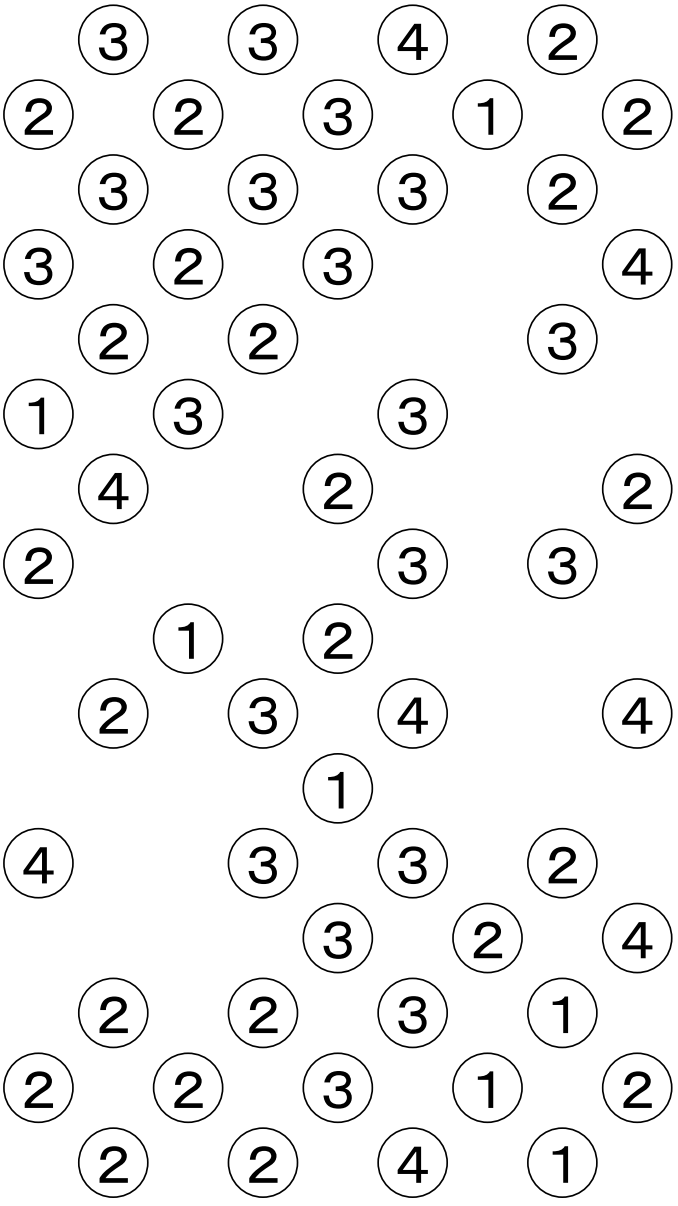
2 1 2 3
3 1 2
3 8 2 2
3 2 3 3
1 2
3 2 3 1
2 2 3 4
2 3 5 2
3 3 2 5
3 2
5 4 2 4
3 2 4 3
3 1 2
1 3 2 2
2 3 3 2

29 Slitherlink



30 Bridges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2 2 3 1 2
3 3 3 2
3 2 3 4
2 2 3
1 3 3
4 2 2
2 3 3
1 2
2 3 4 4
1
4 3 3 2
3 2 4
2 2 3 1
2 2 3 1 2
2 2 4 1

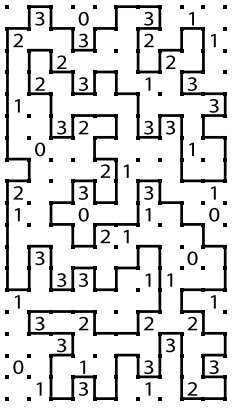
1 Sudoku

9	2	3	7	4	6	5	8	1
6	8	5	3	9	1	4	7	2
1	7	4	2	5	8	3	9	6
3	9	1	6	7	2	8	5	4
7	5	2	8	3	4	6	1	9
4	6	8	9	1	5	7	2	3
2	4	9	5	8	3	1	6	7
8	3	7	1	6	9	2	4	5
5	1	6	4	2	7	9	3	8

2 Sudoku

1	2	6	5	7	3	4	9	8
8	9	7	1	2	4	6	5	3
5	4	3	6	8	9	7	1	2
6	8	9	7	1	5	3	2	4
3	1	2	4	6	8	5	7	9
4	7	5	3	9	2	1	8	6
7	5	8	9	3	6	2	4	1
9	6	1	2	4	7	8	3	5
2	3	4	8	5	1	9	6	7

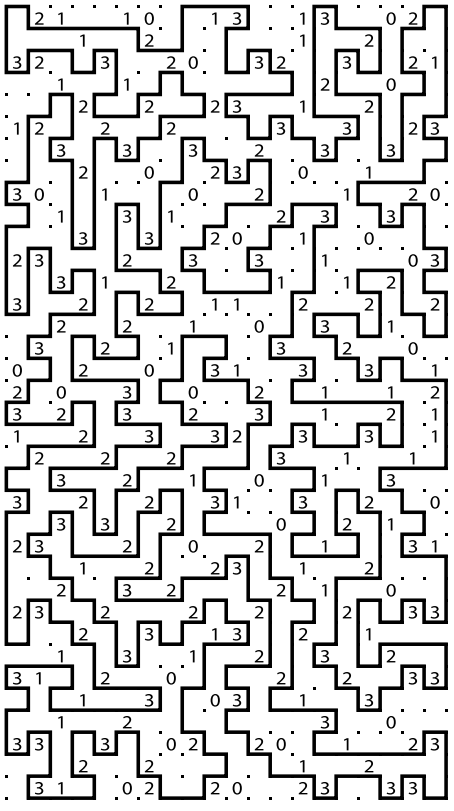
3 Slitherlink



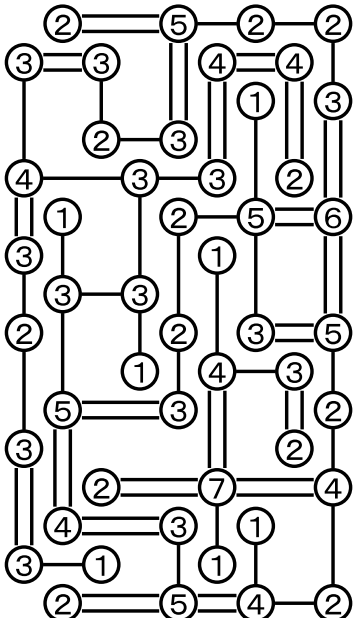
4 Sudoku

2	1	3	5	6	9	7	8	4
5	7	6	8	3	4	1	2	9
9	8	4	2	1	7	3	5	6
1	6	9	7	5	2	4	3	8
3	4	7	6	8	1	2	9	5
8	2	5	9	4	3	6	7	1
7	9	8	1	2	6	5	4	3
4	5	1	3	7	8	9	6	2
6	3	2	4	9	5	8	1	7

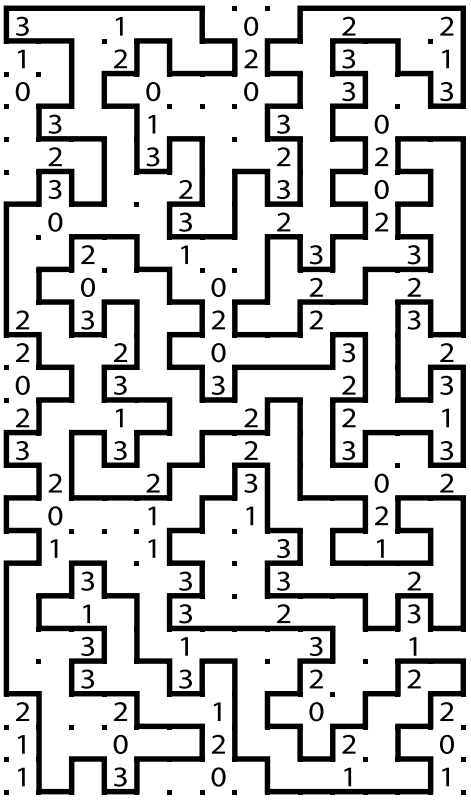
5 Slitherlink



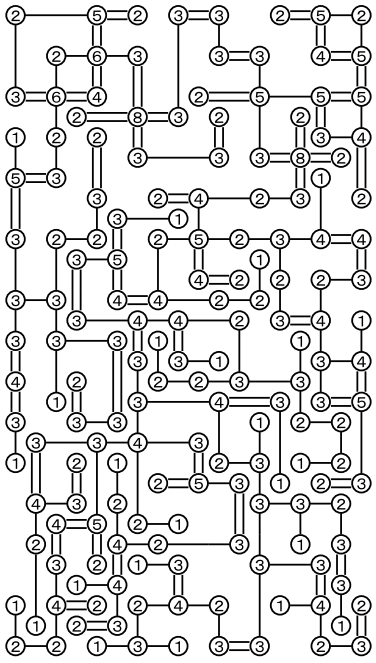
6 Bridges



8 Slitherlink



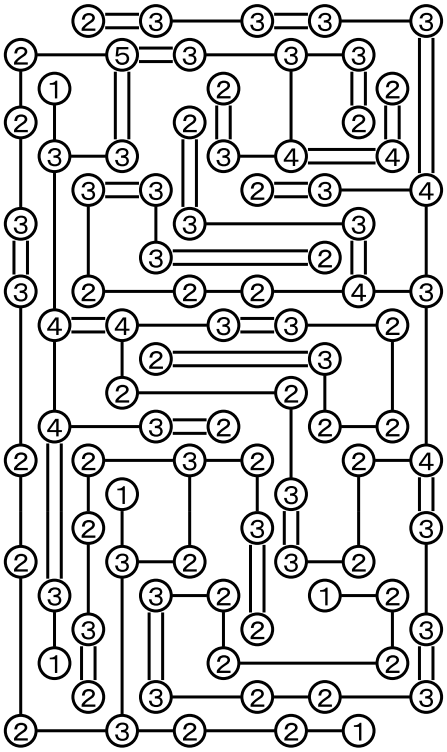
7 Bridges



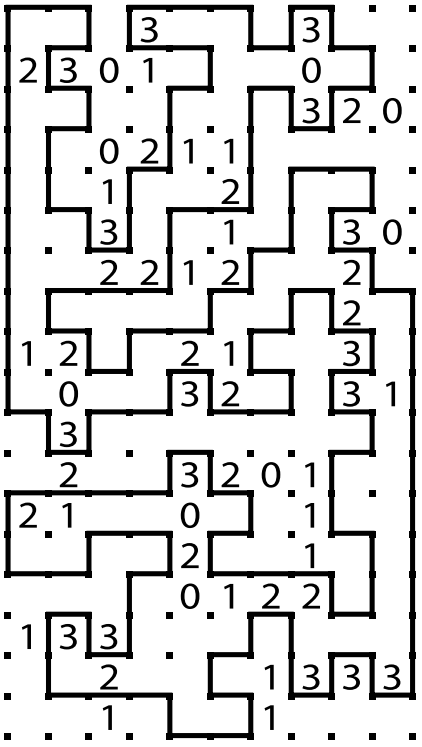
9 Sudoku

1	8	7	3	9	5	4	2	6
4	5	3	6	2	1	8	9	7
6	9	2	7	4	8	5	1	3
9	6	4	2	7	3	1	5	8
3	7	1	8	5	4	2	6	9
8	2	5	9	1	6	3	7	4
2	1	8	4	6	7	9	3	5
7	3	9	5	8	2	6	4	1
5	4	6	1	3	9	7	8	2

10 Bridges



12 Slitherlink



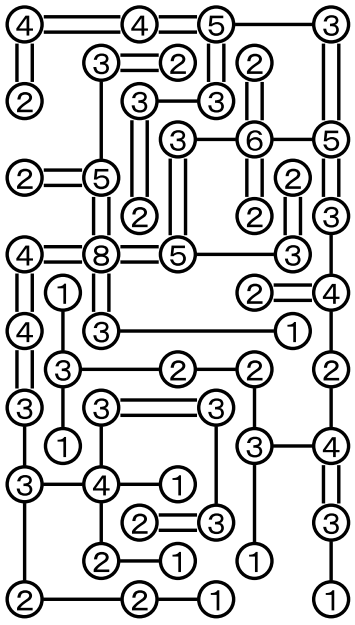
11 Sudoku

7	2	4	6	1	9	8	3	5
8	3	5	4	2	7	1	9	6
1	6	9	5	3	8	4	7	2
3	7	6	9	8	5	2	4	1
9	5	1	2	4	6	3	8	7
2	4	8	3	7	1	6	5	9
4	1	2	7	9	3	5	6	8
5	9	3	8	6	2	7	1	4
6	8	7	1	5	4	9	2	3

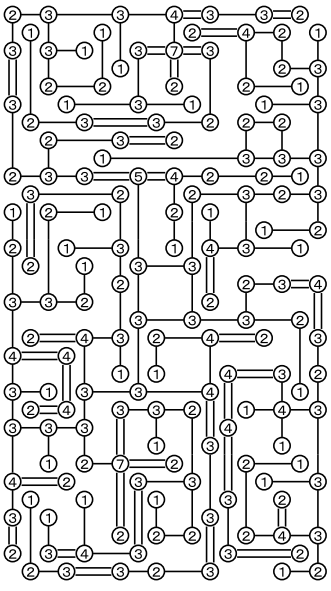
13 Sudoku

6	1	8	3	2	4	9	5	7
5	9	3	8	1	7	4	2	6
4	7	2	9	6	5	3	8	1
2	3	5	7	4	1	8	6	9
7	8	4	6	3	9	5	1	2
1	6	9	2	5	8	7	3	4
3	5	1	4	9	2	6	7	8
8	4	6	1	7	3	2	9	5
9	2	7	5	8	6	1	4	3

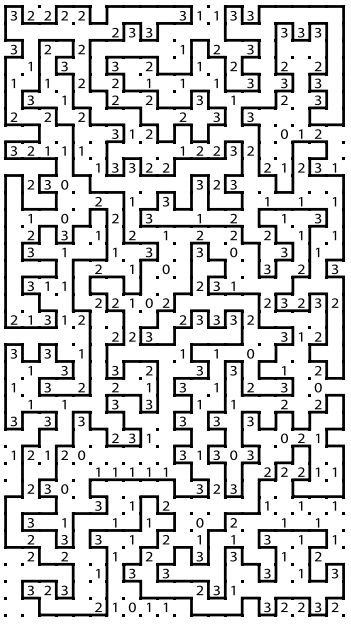
14 Bridges



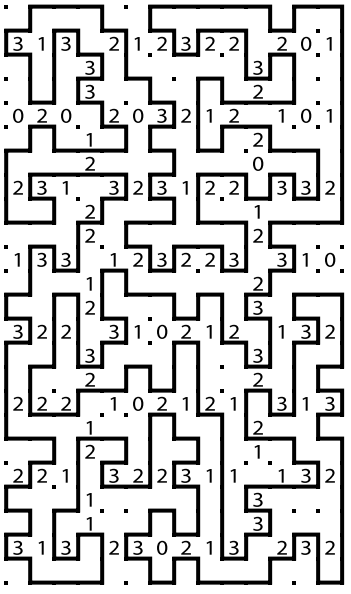
15 Bridges



16 Slitherlink



17 Slitherlink



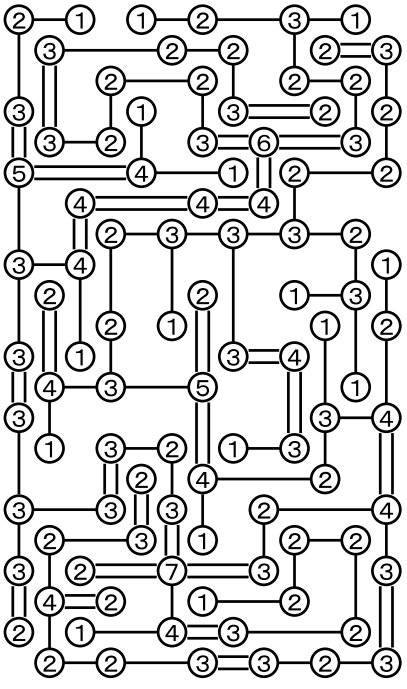
18 Sudoku

8	5	7	4	1	2	3	9	6
3	6	1	5	9	8	2	7	4
4	2	9	7	3	6	5	1	8
6	3	5	9	8	4	1	2	7
7	9	4	1	2	5	6	8	3
1	8	2	6	7	3	4	5	9
2	7	8	3	6	1	9	4	5
5	1	6	8	4	9	7	3	2
9	4	3	2	5	7	8	6	1

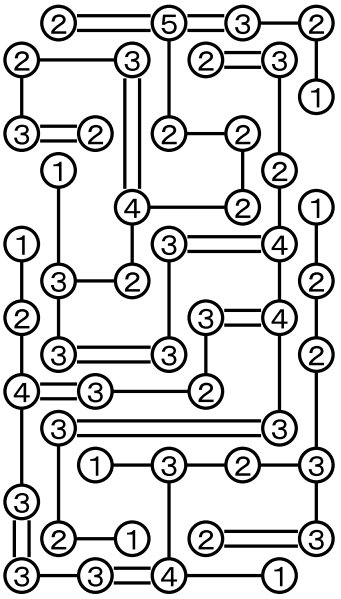
19 Sudoku

2	5	6	9	4	3	8	1	7
3	9	8	1	5	7	2	4	6
1	4	7	8	6	2	3	9	5
5	2	9	4	3	6	1	7	8
4	7	1	5	9	8	6	2	3
6	8	3	2	7	1	4	5	9
8	3	4	7	2	5	9	6	1
9	1	5	6	8	4	7	3	2
7	6	2	3	1	9	5	8	4

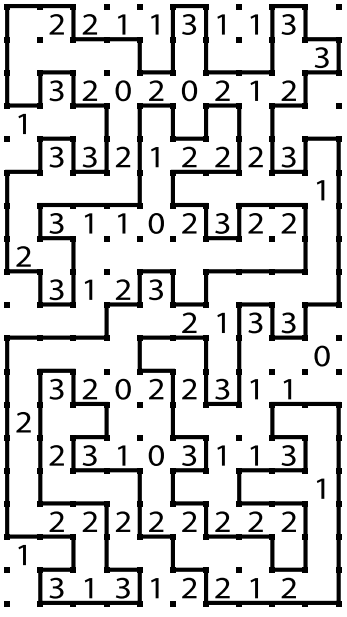
20 Bridges



21 Bridges



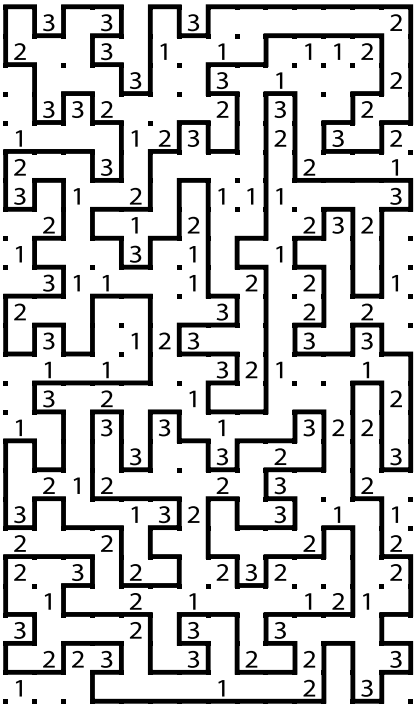
22 Slitherlink



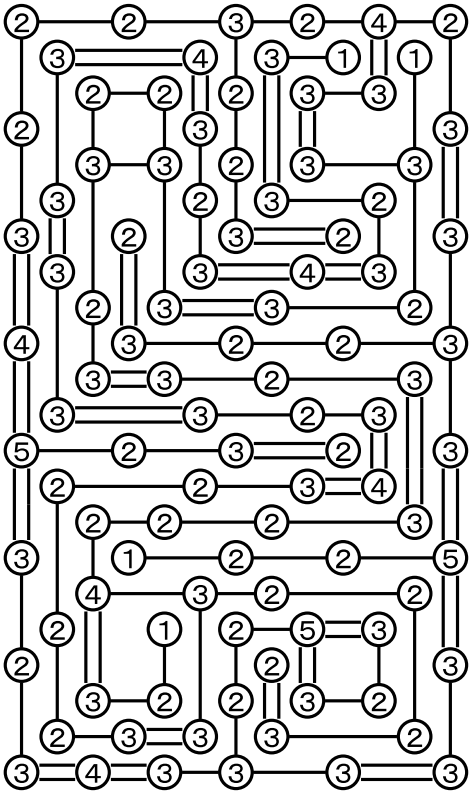
23 Sudoku

5	2	4	1	8	9	7	6	3
7	3	1	2	6	4	8	9	5
8	6	9	5	7	3	2	4	1
3	8	2	7	4	6	5	1	9
1	4	6	9	2	5	3	7	8
9	7	5	3	1	8	6	2	4
2	1	8	4	3	7	9	5	6
4	5	3	6	9	2	1	8	7
6	9	7	8	5	1	4	3	2

24 Slitherlink



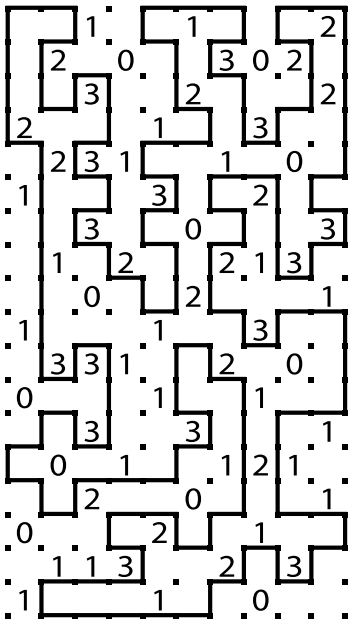
25 Bridges



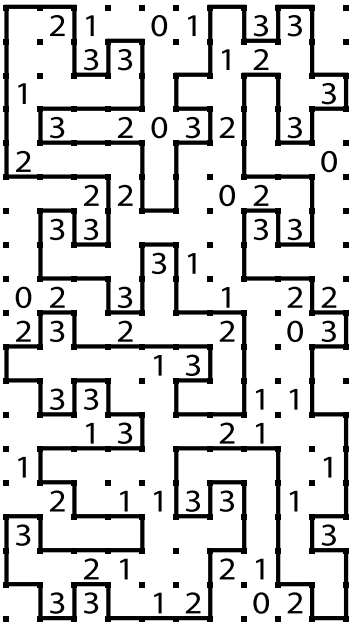
26 Sudoku

3	7	8	2	4	5	6	9	1
2	4	6	1	3	9	7	8	5
5	1	9	7	6	8	3	4	2
6	9	4	5	2	1	8	7	3
7	8	5	6	9	3	2	1	4
1	3	2	8	7	4	9	5	6
8	6	7	4	1	2	5	3	9
4	2	3	9	5	7	1	6	8
9	5	1	3	8	6	4	2	7

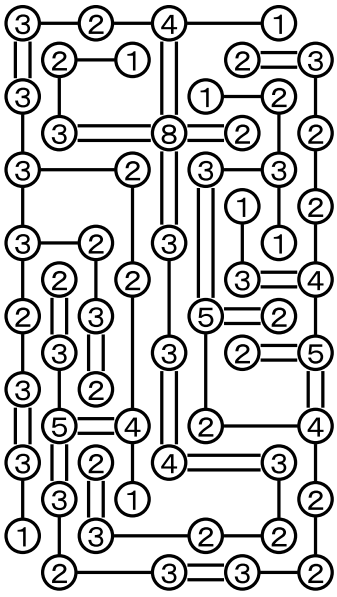
27 Slitherlink



29 Slitherlink



28 Bridges



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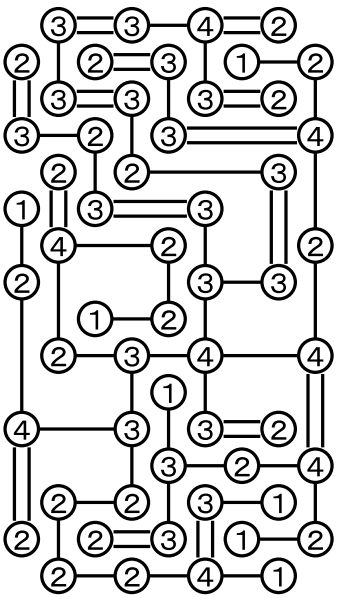

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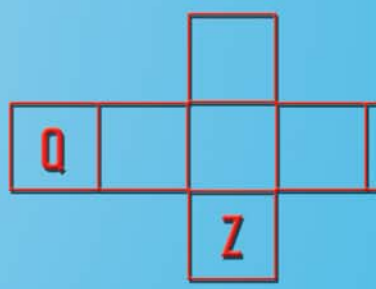

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