

**PAPER
E**

ICAS

**INTERNATIONAL COMPETITIONS AND
ASSESSMENTS FOR SCHOOLS**

**MATHEMATICS
2007**

38784756

DO NOT OPEN THIS BOOKLET UNTIL INSTRUCTED.

40 QUESTIONS

TIME ALLOWED: 1 HOUR

STUDENT'S NAME:

Read the instructions on the **ANSWER SHEET** and fill in your **NAME, SCHOOL** and **OTHER INFORMATION**.

Use a 2B or B pencil.

Do **NOT** use a pen.

Rub out any mistakes completely.

You **MUST** record your answers on the **ANSWER SHEET**.

Mark only **ONE** answer for each question.

Your score will be the number of correct answers.

Marks are **NOT** deducted for incorrect answers.

There are **35 MULTIPLE-CHOICE QUESTIONS** (1–35).

Use the information provided to choose the **BEST** answer from the four possible options.

On your **ANSWER SHEET** fill in the oval that matches your answer.

There are **5 FREE-RESPONSE QUESTIONS** (36–40).

Write your answer in the boxes provided on the **ANSWER SHEET**.

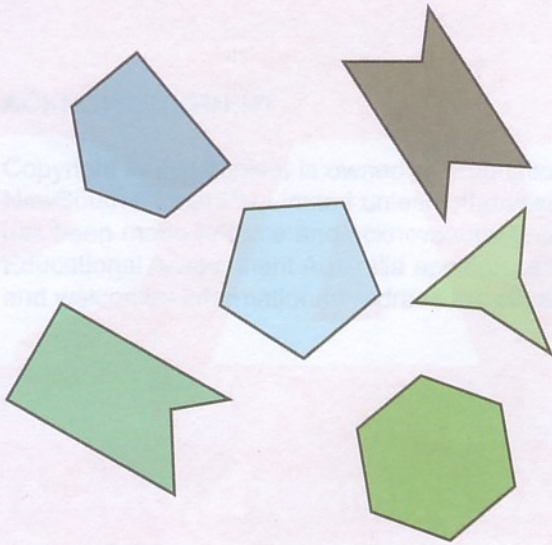
You may use a ruler and spare paper.

You are **NOT** allowed to use a calculator.

**PLEASE SEE BACK COVER FOR A LIST
OF THE YEAR LEVELS THAT SHOULD**

SIT THIS PAPER

1. How many of these shapes are pentagons?



- (A) 4 (B) 3
(C) 2 (D) 1

2. Here is a picture of a tennis ball.



Which word best describes the shape of a ball?

- (A) cube
(B) cylinder
(C) prism
(D) sphere

3. $2.5 \times 4 = ?$

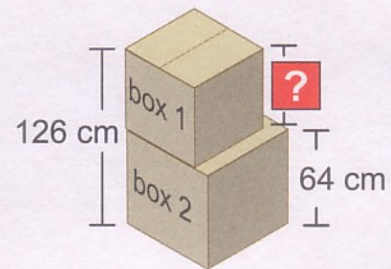
- (A) 4
(B) 8
(C) 10
(D) 100

4. Dan was sick and needed to take 2 tablets 3 times a day for 6 days.

How many tablets did he need altogether?

- (A) 6
(B) 12
(C) 18
(D) 36





5. The diagram shows the height of a stack of boxes.



What is the height of box 1?

- (A) 38 cm
(B) 62 cm
(C) 142 cm
(D) 190 cm

6. Kim bought one of these phones.

Phone	Mass	Battery life	Camera
Kryo-GR 	70 g	200 hours	Yes
Mota-3W 	80 g	250 hours	No
Nogia-21 	80 g	200 hours	Yes
Samsu-X4 	70 g	250 hours	No

Kim bought the phone which had a camera and a mass of 80 g.

Which phone did she buy?

- (A) Kryo-GR
- (B) Mota-3W
- (C) Nogia-21
- (D) Samsu-X4

7. These are the Personal Identification Numbers (PINs) four people use with their credit cards.

Aaron	4149
Joanne	2848
John	5397
Lesley	3095

Whose PIN is made up of digits that are all square numbers?

- (A) Aaron's
- (B) Joanne's
- (C) John's
- (D) Lesley's

8. What is the time shown on this clock?



- (A) 9:34
- (B) 8:34
- (C) 7:43
- (D) 6:43

9. Uma walks to school each day. She walks 2 kilometres from her house to the school gate. She then walks 23 metres from the school gate to her classroom.

How far does she walk to get from her house to her classroom?

- (A) 25 m
- (B) 43 m
- (C) 223 m
- (D) 2023 m

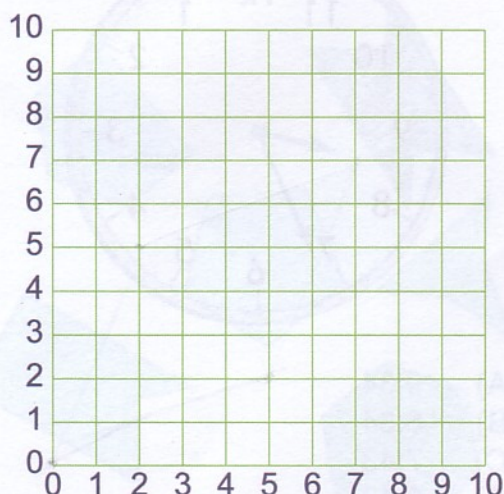
10. Rani arrived at the station at 6:08 am. The next train was at 7:04 am.

How long did she have to wait?

- (A) 56 minutes
- (B) 96 minutes
- (C) 1 hour 4 minutes
- (D) 1 hour 11 minutes

11. Mike plotted these points on the grid:

$(7, 7), (5, 2), (0, 0), (2, 5)$

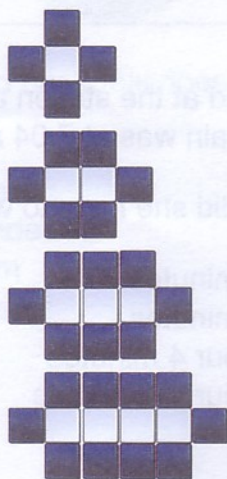


He then drew four lines joining the points together in the order that he plotted them.

What shape do the lines make?

- (A) rectangle
- (B) rhombus
- (C) square
- (D) triangle

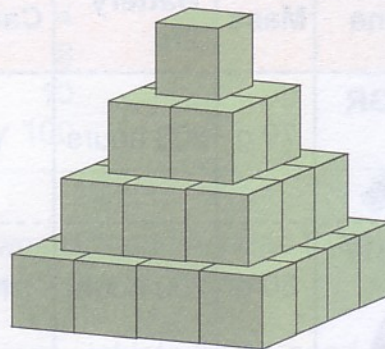
12. Each shape in this pattern is made out of blue and white tiles.



Which rule gives the number of blue tiles from the number of white tiles?

- (A) white tiles + 3
- (B) white tiles \times 2
- (C) white tiles \times 4 - 2
- (D) white tiles \times 2 + 2

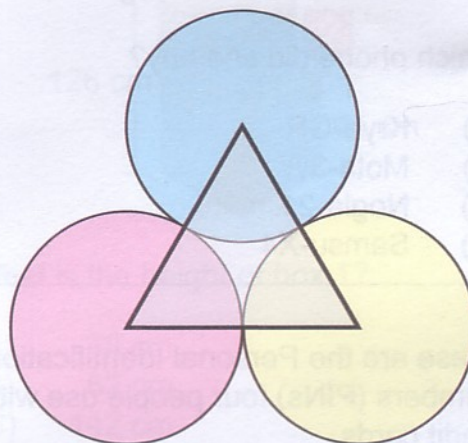
13. Each layer in this stack of boxes is a square prism as shown.



How many boxes are in the stack?

- (A) 10
- (B) 19
- (C) 25
- (D) 30

14. This diagram shows three circles, each with a radius of 6 cm.

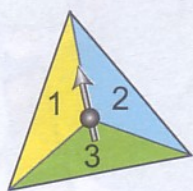


Each vertex of the triangle is at the centre of a circle.

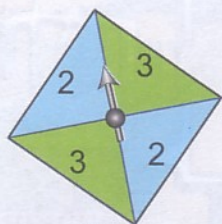
What is the perimeter of the triangle?

- (A) 12 cm
- (B) 18 cm
- (C) 36 cm
- (D) 72 cm

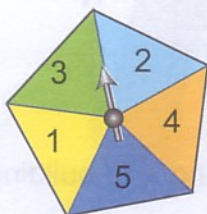
15. The picture shows the spinners that four children have made.



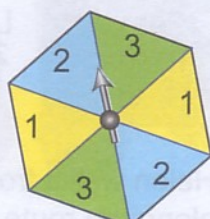
Ellen



Marika



Akmal



Ling

Which children have spinners that are equally likely to land on 3?

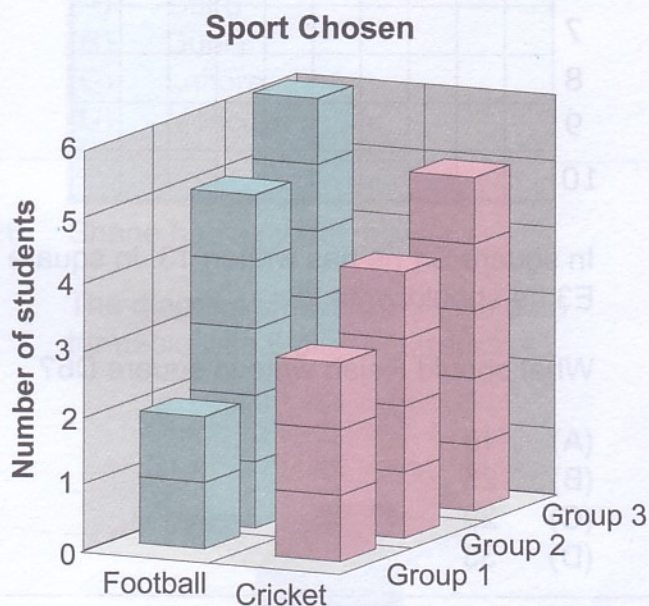
- (A) Ellen and Akmal
(B) Marika and Ling
(C) Marika and Akmal
(D) Ellen and Ling

17. Which of these numbers is closest to 10?

- (A) 10.4
(B) 10.31
(C) 9.7
(D) 9.59

18. Students in three different groups chose to play either football or cricket.

The graph shows the sport they chose.



Which of these sets has the greatest number of students?

- (A) students in Group 2
(B) students in Group 3
(C) students who chose cricket
(D) students who chose football

16. The seed of this mango is 20% of its total mass.



The mass of the mango is 300 g.

What is the mass of the seed?

- (A) 15 g
(B) 30 g
(C) 60 g
(D) 280 g

19. Rajah is writing all the numbers from 1 to 100 in a pattern. This grid shows the start of his pattern.

	A	B	C	D	E	F	G	H	I	J
1	1	2	9	10						
2	4	3	8	11						
3	5	6	7	12						
4	16	15	14	13						
5	17									
6										
7										
8										
9										
10										

In square D4 he has written 13. In square E3 he should write 23.

What should Rajah write in square D6?

- (A) 15
(B) 25
(C) 29
(D) 33

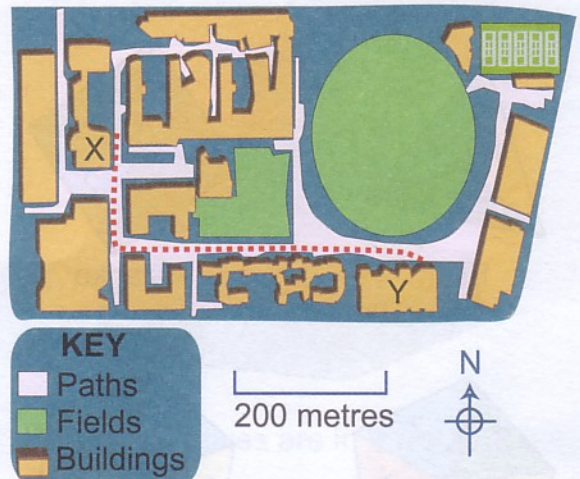
20. Bruno had 12 apples and 18 pears.

The apples were shared equally into some bags. The pears were shared equally into the same bags. No fruit was left over.

What was the smallest number of apples and pears that he could have put in each bag?

- (A) 2 apples and 3 pears
(B) 3 apples and 2 pears
(C) 3 apples and 6 pears
(D) 6 apples and 9 pears

21. Here is a map of a school.

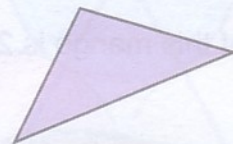


Helen walks from building X to building Y along the route shown.

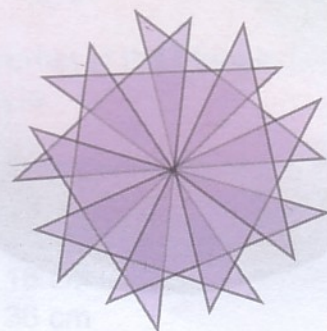
About how far does Helen walk?

- (A) 5.5 m (B) 11 m
(C) 110 m (D) 550 m

22. Miriam drew this triangle on her computer screen.



She combined a number of copies of the triangle to produce this design.



How many of Miriam's triangles were used to make the design?

- (A) 6
(B) 9
(C) 18
(D) 27

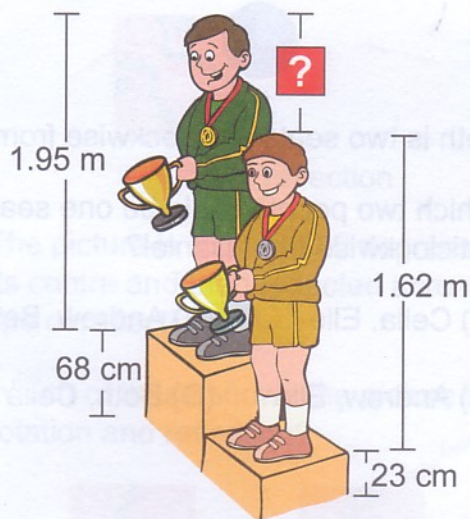
23. This toy cat has a mass of 41.5 grams.



What is the mass of this cat in **kilograms**?

- (A) 0.00415
- (B) 0.0415
- (C) 0.415
- (D) 4.15

24. Calvin and Steven are standing on steps of different heights.



NOT TO SCALE

What is the distance between the top of Calvin's head and the top of Steven's head?

- (A) 33 cm
- (B) 45.33 cm
- (C) 78 cm
- (D) 91.33 cm

25. The table shows the maximum temperature in five cities for one day.

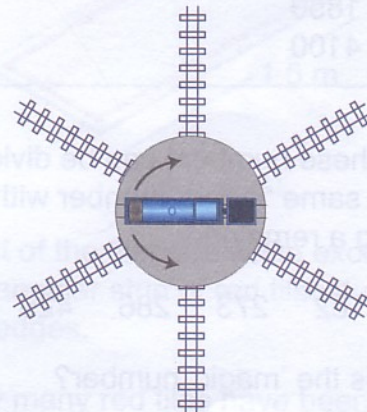
Athens	8 °C
Cairo	20 °C
Dublin	-4 °C
Lahore	21 °C
Moscow	-12 °C

Which city's maximum temperature was 12 °C colder than Athens?

- (A) Cairo
- (B) Dublin
- (C) Lahore
- (D) Moscow

26. Shane has a model railway.

The diagram shows an engine on a turntable with 6 different tracks.



Shane needs to rotate the turntable so that the engine can leave on one of the tracks.

What is the smallest number of degrees Shane could rotate the turntable so that the engine can leave?

- (A) 60
- (B) 45
- (C) 30
- (D) 15

27. Here are three bottles.



2.5 L 600 mL 1 L

What is the total capacity of the three bottles in **millilitres**?

- (A) 950
- (B) 1625
- (C) 1850
- (D) 4100

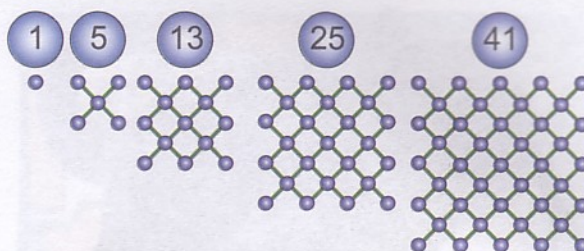
28. All of these numbers can be divided by the same 'magic' number without leaving a remainder.

182 273 286 429

What is the 'magic' number?

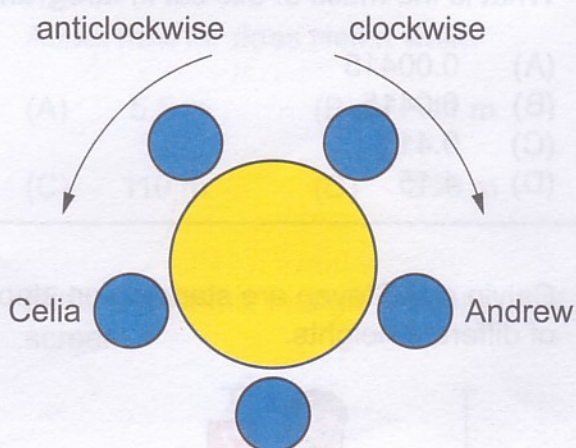
- (A) 3
- (B) 7
- (C) 11
- (D) 13

29. What number comes next in this pattern?



- (A) 36
- (B) 57
- (C) 61
- (D) 73

30. Andrew, Beth, Celia, Daniel and Elle are sitting at a round table. Celia is two seats clockwise from Andrew, as shown.

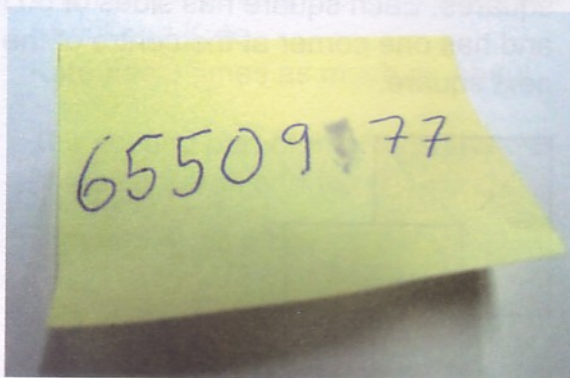


Beth is two seats anticlockwise from Elle.

Which two people could be one seat anticlockwise from Daniel?

- (A) Celia, Elle
- (B) Andrew, Beth
- (C) Andrew, Elle
- (D) Beth, Celia

31. Grant wrote down an eight-digit phone number. Later one digit got smudged.



Grant decided to guess the number.

What was Grant's chance of guessing the number correctly on his first try?

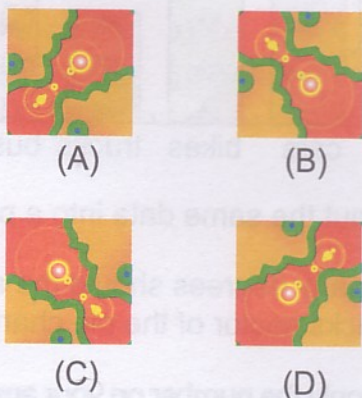
- (A) 1 chance in 4
- (B) 1 chance in 8
- (C) 1 chance in 10
- (D) 1 chance in 100

32. The diagram shows a picture and a line of reflection.



The picture is rotated 180 degrees about its centre and then reflected across the line of reflection.

Which of these shows the picture after the rotation and reflection?



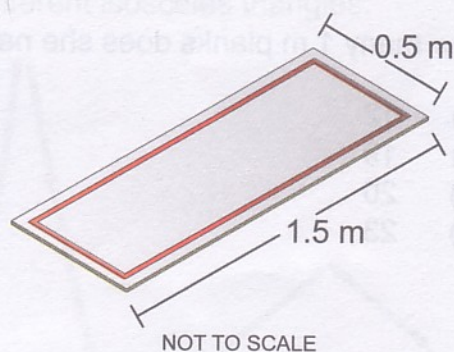
33. Kiri collected some spiders and some ants in her garden.

Each spider had 8 legs and each ant had 6 legs. She collected 8 animals altogether and they had a total of 58 legs.

How many ants did Kiri collect?

- (A) 2
- (B) 3
- (C) 5
- (D) 8

34. The diagram shows a table top which has been covered in square tiles. Each tile has 2 cm sides.



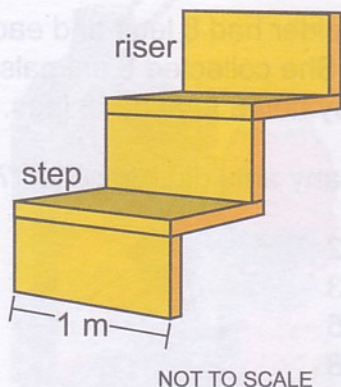
Most of the tiles are white except for a rectangular strip of red tiles 4 cm in from the edges.

How many red tiles have been used to tile the table top?

- (A) 180
- (B) 184
- (C) 368
- (D) 396

42

35. Stairs are made up of steps and risers. The first and last pieces are risers.



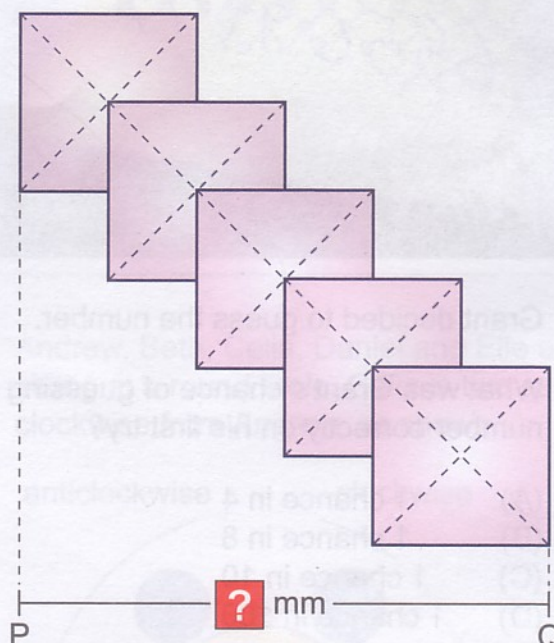
Leila makes a staircase that has a breadth of 1 m and a height of 2.07 m. She only uses timber planks that are 1 m long, 18 cm wide and 3 cm thick.

How many 1 m planks does she need?

- (A) 12
- (B) 19
- (C) 20
- (D) 23

QUESTIONS 36 TO 40 ARE FREE RESPONSE.

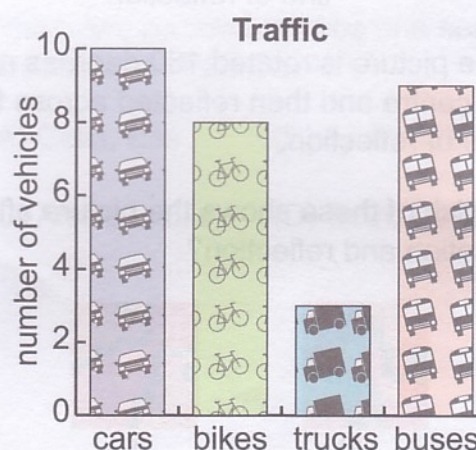
36. This shape is made up of overlapping squares. Each square has sides of 50 mm and has one corner at the centre of the next square.



What is the length in **millimetres** from P to Q?

(Write only the number on your answer sheet.)

37. Rajiv drew this graph about the traffic passing his school at lunchtime.



Rajiv put the same data into a pie chart.

How many degrees should the angle of the trucks sector of the pie chart be?

(Write only the number on your answer sheet.)

38. A pie is cut into two equal parts.

The first part of the pie is shared between Abdul and Kate.

Kate has 3 times as much as Abdul.

The second part of the pie is shared between Sarah and Ron.

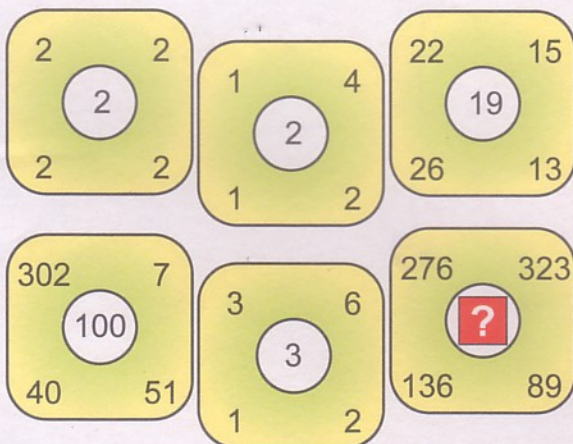
Ron has $\frac{3}{5}$ as much as Sarah.

The mass of Sarah's share of the pie is 200 grams.

What was the total mass of the pie, in grams?

(Write only the number on your answer sheet.)

39. The numbers in these squares follow a rule.

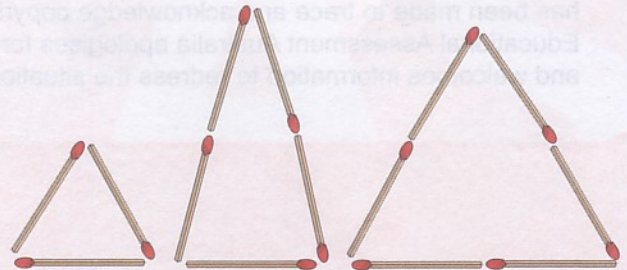


What is the missing number?

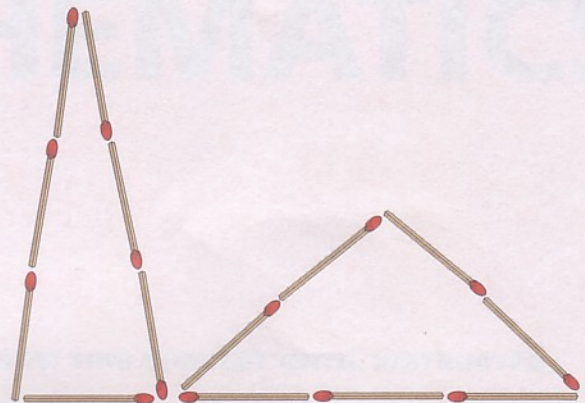
(Write only the number on your answer sheet.)

40. Alan is using matchsticks to make isosceles triangles. Isosceles triangles have at least two sides the same length. He must use all the matchsticks, and cannot break any.

With 3 or 5 or 6 matchsticks he can make only 1 isosceles triangle.



With 7 matchsticks he can make two different isosceles triangles.



How many different single isosceles triangles can he make with 45 matchsticks, using all the matchsticks each time?

(Write only the number on your answer sheet.)

ACKNOWLEDGMENT

Copyright in this booklet is owned by Educational Assessment Australia, NewSouth Global Pty Limited unless otherwise indicated. Every effort has been made to trace and acknowledge copyright for materials used. Educational Assessment Australia apologises for any accidental infringement and welcomes information to redress the situation.

THE FOLLOWING YEAR LEVELS SHOULD SIT THIS PAPER:

AUSTRALIA: Year 7
BRUNEI: Form 1
INDONESIA: Year 8
MALAYSIA: Form 1
NEW ZEALAND: Year 8
PACIFIC: Year 7
SINGAPORE: Primary 6
SOUTH AFRICA: Grade 7

**PAPER
E**

