Name ……..

Present School ……..……

The London Independent Girls' Schools Consortium

Group 1

Mathematics Entrance Examination

7th January 2011

Time allowed: **1 hour 15 minutes**

Write in pencil.

Do all your rough working in the space near the question. Do not rub it out.

If you cannot do a question go on to the next one.

NO CALCULATORS OR RULERS ARE ALLOWED.

[1]

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1. 5 6 2 8 + 7 9 7 4 =

Answer: .....

2. 6 3 2 1 – 5 7 6 =

Answer: .....

3. 2 7 9 4 × 8 =

Answer: .....

4. 4 6 4 4 ÷ 6 =

Answer: .....

5. Write the correct number in each box

246 + ☐ = 246

246 – ☐ = 246

246 × ☐ = 246

246 ÷ ☐ = 246

[2]

6. (a) Find $\frac{1}{7}$ of 35.

Answer: .....

(b) Find $\frac{3}{7}$ of 35.

Answer: .....

7. What number between 30 and 40 is divisible by both 3 and 4?

Answer: .....

8. Circle all the numbers below that are more than $\frac{1}{4}$.

0.2 $\frac{1}{5}$ 0.4 $\frac{3}{8}$ 0.027

9. Write the number twenty thousand, three hundred and six in figures.

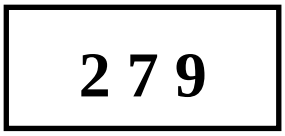
Answer: .....

[3]

10. Give two numbers which add up to make 40 and have a difference of 10.

Answer: .....

11. This number plate has the number 279.



Write down all the other 3-figure numbers you could make using 2, 7 and 9. You can only use 2, 7 and 9 once in each 3-figure number.

Answer: .....

12. Kyra parks her car at **10.30 am**.
She collects the car at **2.15 pm**.
How much does she have to pay?

Car Park Charges	
Time	**Charge**
Up to 1 hour	20p
1 to 2 hours	50p
2 to 3 hours	£1.00
3 to 4 hours	£1.70
Over 4 hours	£5.00

Answer: .....

[4]

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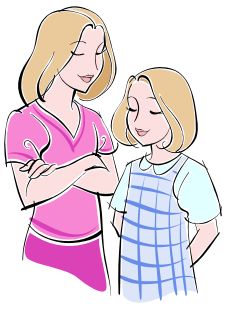
13. The amount of each ingredient needed to make 8 cakes is given in the table below.

ingredients	8 cakes	12 cakes
flour	240 g	..... g
eggs	4	.....
sugar	6 tablespoons	..... tablespoons
butter	150 g	..... g

Complete the table to show how much of each ingredient is needed to make 12 cakes.

14. Josie and Holly share £42 between them.
Josie has three times as much as Holly.
How much has Holly?



Answer: £ .....

[5]

15. 3 apples and 1 orange cost 58p.

= 58p

1 apple and 3 oranges cost 62p.

= 62p

(a) What is the cost of 4 apples and 4 oranges?

Answer: .....

(b) What is the cost of 1 apple and 1 orange?

Answer: .....

(c) What does 1 apple cost?

Answer: .....

[6]

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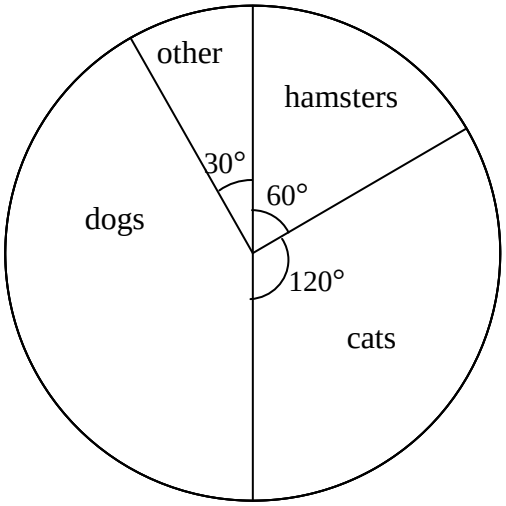
16. Anthony conducted a survey in his year group to find out what pets the children had. He constructed a pie chart from his results. The total number of cats in the survey was 48.



(a) How many hamsters were there in the survey?

Answer: .....

(b) How many dogs?

Answer: .....

17. Mr and Mrs Green and their four children went on holiday. The accommodation cost £320 per adult and £220 per child. The travelling expenses were £222 per adult and £168 per child. How much did their holiday cost in total?

Answer: £ .....

[7]

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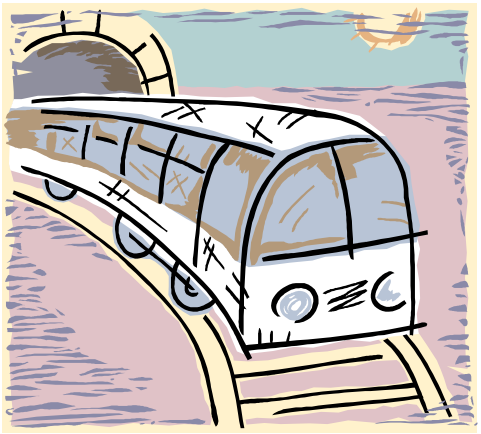
18. Here is part of a train timetable for trains running from Bunley to Wester.

Bunley	depart	08 00
Sidcot	arrive	08 43
Sidcot	depart	08 45
Wester	arrive	10 32



(a) How long does the journey from Sidcot to Wester take?

Answer: .....

(b) The time it takes to get from Bunley to Wester is always the same. What time did I depart from Bunley if I arrive in Wester at 12 14?

Answer: .....

[8]

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19. Etienne went to her local greengrocers to buy some fruit. Some of the prices are shown below.

bananas	£2 for 3
cherries	£4.50 per kg
grapefruit	90p each
oranges	£1.60 for 5
tomatoes	£1.85 per box

She bought 6 bananas, 2 grapefruit and half a kilogram of cherries.

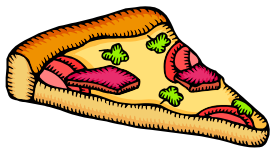
(a) How much did her shopping cost?

Answer: .....

(b) How much change did she receive if she paid with a £20 note?

Answer: .....

20. A pizza is divided into 12 equal slices.
Matthew eats $\frac{1}{4}$ of the pizza and Katie eats another $\frac{1}{6}$.
How many slices are left?



Answer: .....

[9]

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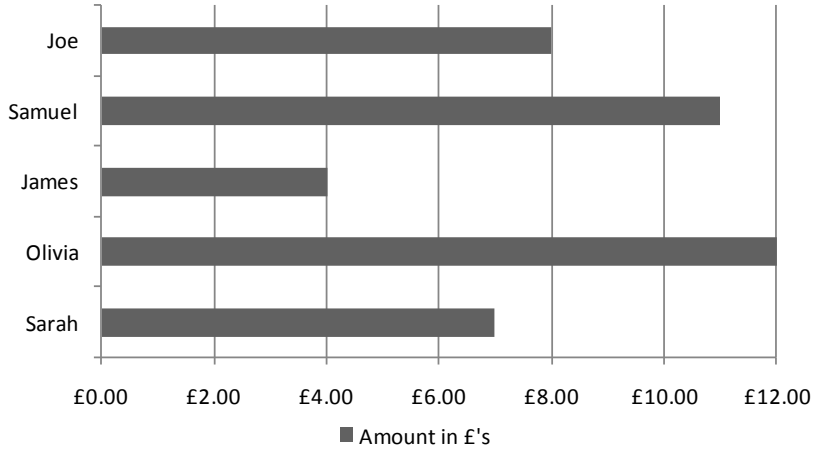
21. In the following sequences, put the missing numbers in the boxes shown.

4, 7, ☐, 13, 16, 19

50, 40, ☐, 23, 16, 10

2, 6, ☐, 54, 162, 486

22. Five children collect money to plant trees. Here is a bar chart of the amounts they have raised so far. Their target is £50 altogether.



(a) Which child has raised the least amount of money?

Answer: .....

(b) How much **more** money do they need to reach their target?

Answer: .....

[10]

23. Helena went on a journey.
She spent $\frac{1}{2}$ of her total travelling time in a car. She then spent $\frac{1}{2}$ of the **remaining** travelling time on the train. She spent 2 hours on the train.

(a) How long did she spend in a car?

Answer: .....hours

(b) What was her total travelling time?

Answer: .....hours

[11]

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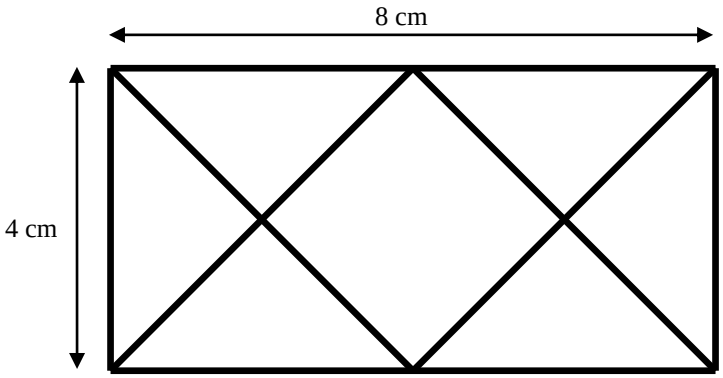
24. Below is a shape made up of six identical triangles arranged around a square.



*The diagram is **not** drawn to scale.*

(a) What is the area of the whole shape?

Answer: .....cm^2

(b) What is the area of one of the triangles?

Answer: .....cm^2

(c) What is the area of the square?

Answer: .....cm^2

(d) How many triangles are there in total?
Hint: there are triangles of different sizes in the shape.

Answer: .....

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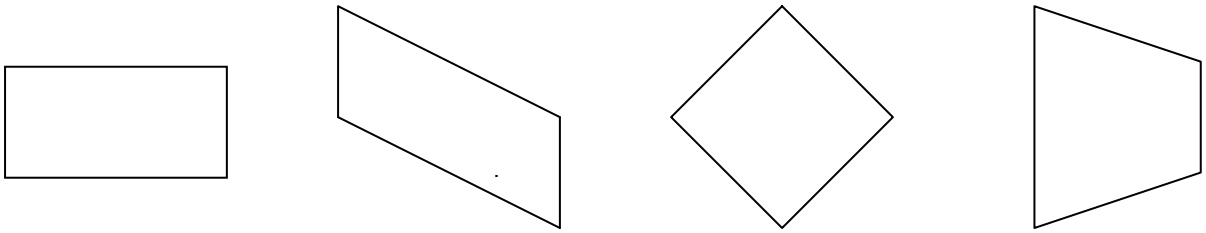
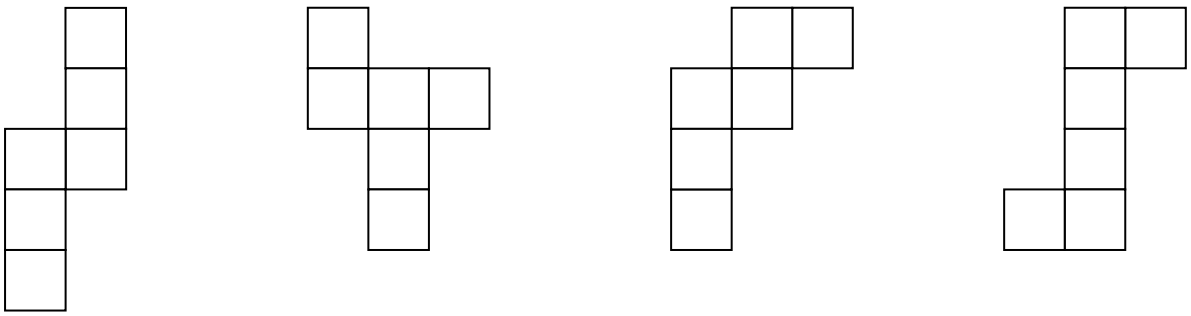
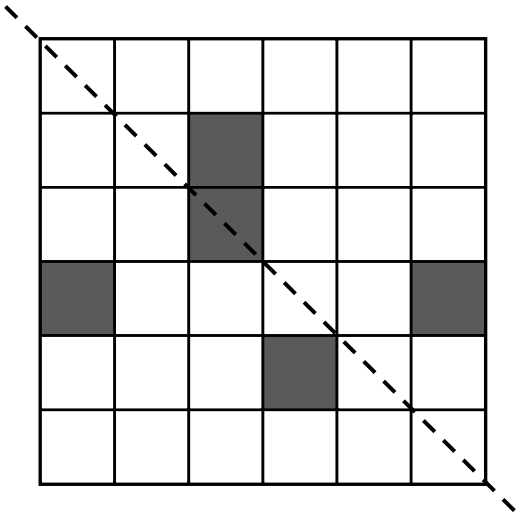
25. Draw in all the lines of symmetry on the shapes below.
Note: some shapes may not have any.



26. Here are several nets.
Circle the one which will ***not*** fold up to make a cube.



27. Shade the least number of squares required to make the dotted line shown a line of symmetry.



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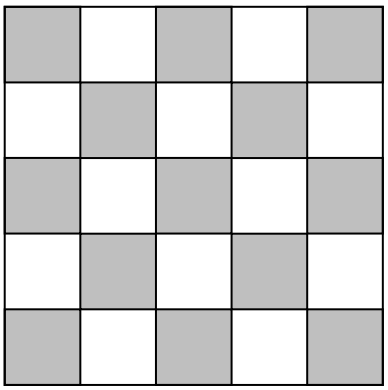
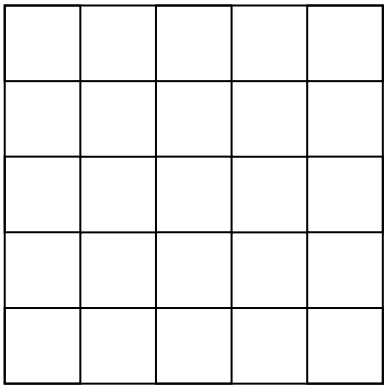
28. (a) What fraction of this shape is shaded?



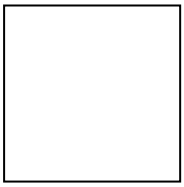
Answer: .....

(b) Shade two-fifths of this shape.



29. The perimeter of this square is 36 cm.

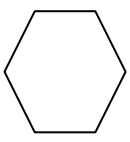
(a) What is the length of one of its sides?



Answer: .....cm

(b) What is its area?

Answer: .....cm^2



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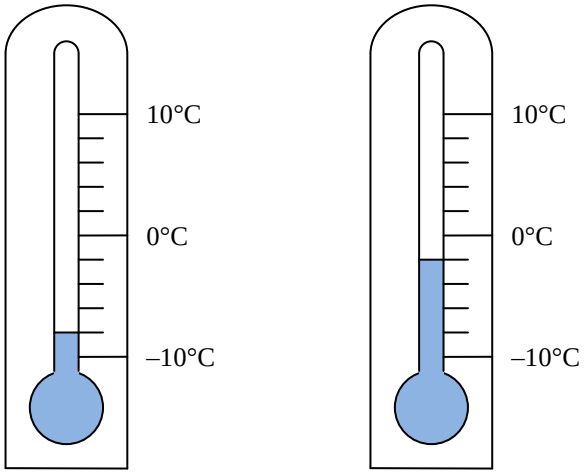
30. Here are two thermometer readings taken at the same time on Monday and Tuesday.



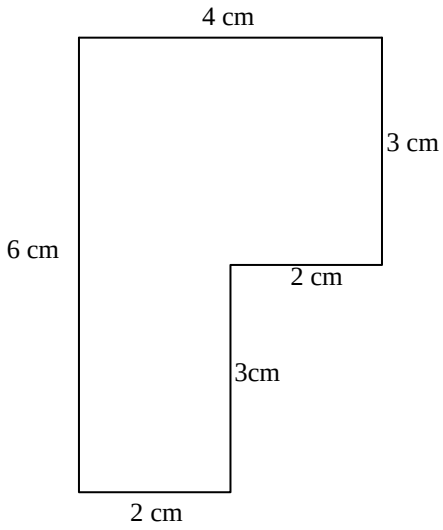
(a) What was the temperature on Monday?

Answer: ..... °C

(b) By how much did the temperature rise between Monday and Tuesday?

Answer: ..... °C

31. How many rectangles with a length of 3 cm and a width of 1 cm would it take to fill the shape below with no overlapping?



Answer: .....

[15]

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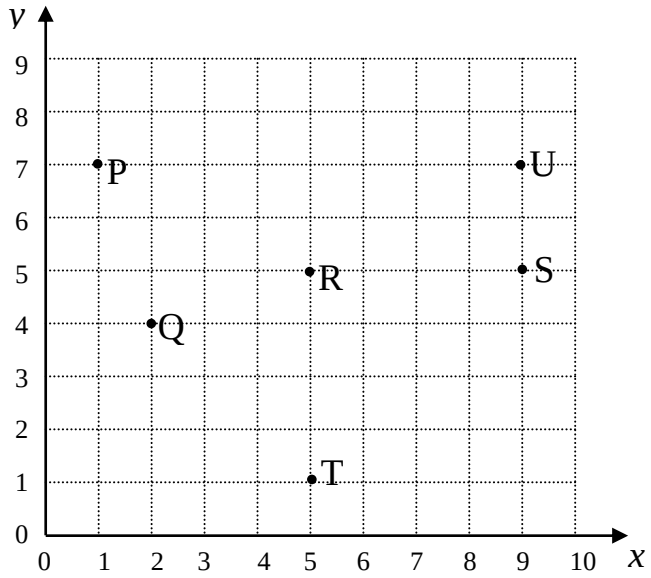
32.



(a) T, R and S are three corners of a square. Write down the coordinates of the other corner.

Answer: (..... , ...)

(b) R, S and U are three corners of a rectangle. Write down the coordinates of the other corner.

Answer: (..... , ...)

(c) P, Q and R are three corners of another square. Write down the coordinates of the other corner.

Answer: (..... , ...)

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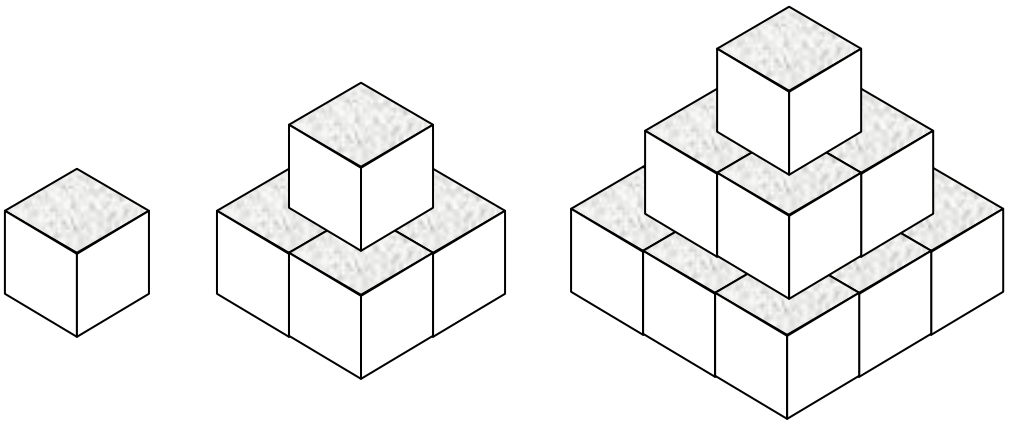
33. A child has made a series of towers. The first three are shown.



1st tower 2nd tower 3rd tower

(a) How many blocks make up the 3rd tower?

Answer: .....

(b) How many blocks does she need to make the 4th tower?

Answer: .....

(c) How many blocks make up the 5th tower?

Answer: .....

(d) How many blocks are there in the bottom layer of the 10th tower?

Answer: .....

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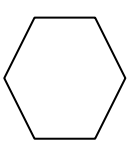
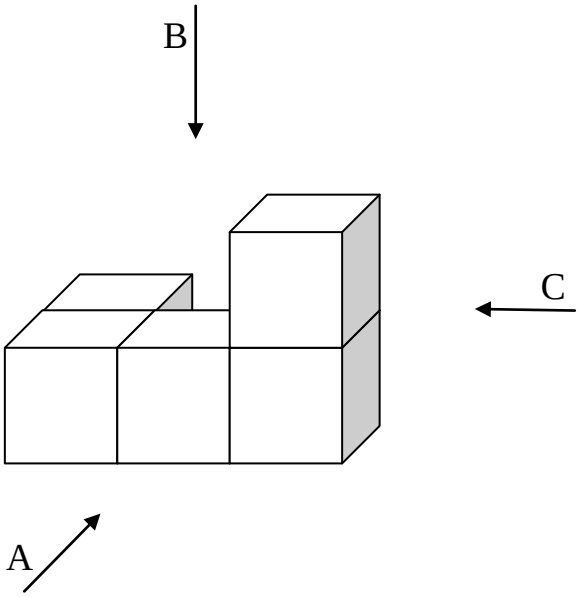
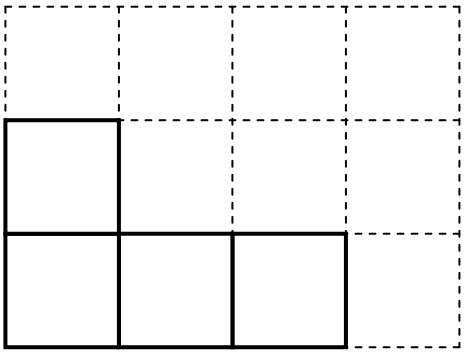


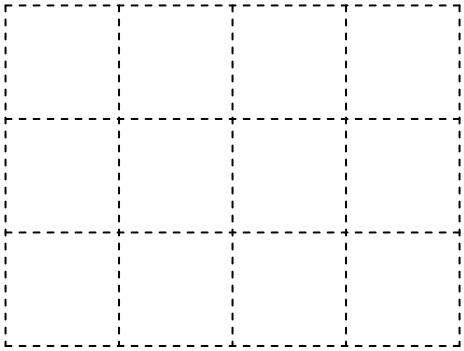
34. The object below is made up of 5 identical blocks.



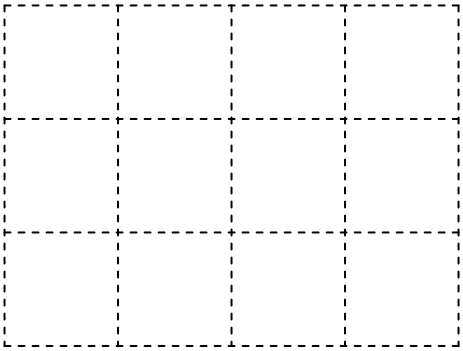
The view in the direction of arrow B is shown below.



Draw the views that are seen in the direction of arrows A and C using the grids below.



View in direction of arrow A



View in direction of arrow C

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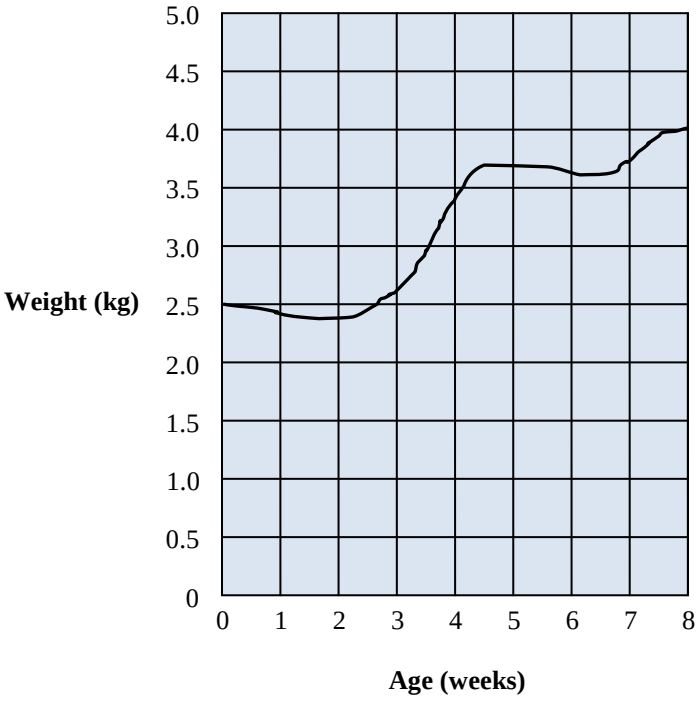
35. The graph shows the weight of baby Anup in the first 8 weeks of his life.



(a) How heavy was Anup when he was eight weeks old?

Answer: .....

(b) How long did it take for his weight to reach 3 kg?

Answer: .....

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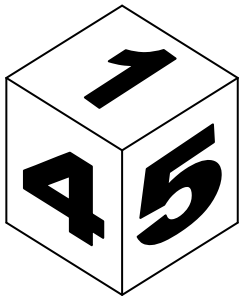
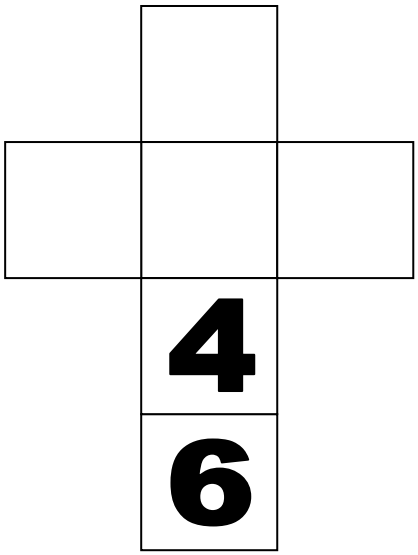
36. The faces of a cube have the numbers from 1 to 6 written on them. The numbers on opposite faces always add up to 7.

A view of the cube is shown on the right.

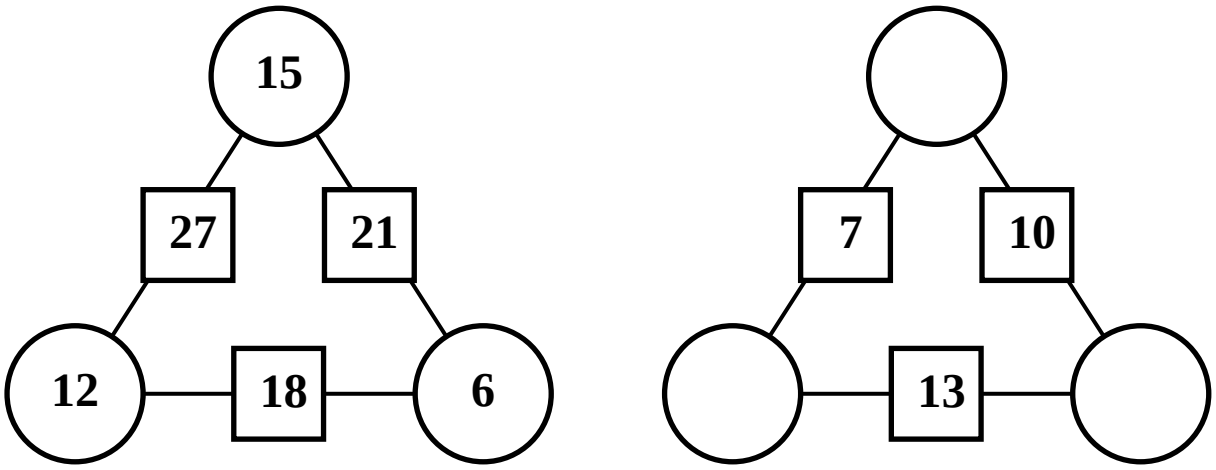


The net of the cube (below) shows two of the numbers on the faces.

Fill in all the missing numbers.



37. In each diagram the numbers in any two circles add up to the number in the square between them. A completed example is given in the diagram on the left. Complete the diagram on the right.



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38. Four 4s can be used to make the numbers 1, 2, 3 and 4 using only + , – , × , ÷ and brackets. This is shown below.

$4 \div 4 + 4 - 4 = \mathbf{1}$ $\quad$ $4 \times 4 \div (4 + 4) = \mathbf{2}$

$(4 + 4 + 4) \div 4 = \mathbf{3}$ $\quad$ $(4 - 4) \div 4 + 4 = \mathbf{4}$

Write the numbers 17, 7 and 5 using all four 4s and only + , – , × , ÷ and brackets.

$\square = 17$

$\square = 7$

$\square = 5$

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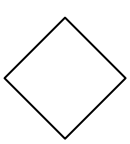
39. Silvio has some number cards.

(a) He holds up a card. He says, *'If I multiply the number on this card by 5 and then add 2, the answer is 47.'*
What is the number on the card?

Answer: .....

(b) He holds up a second card. He says, *'If I divide the number on this card by 6 and then subtract 3, the answer is 5.'*
What is the number on the second card?

Answer: .....



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(c) He holds up a third card. He says, *'If I subtract this number from 50 and then halve it, the answer is 19.'*
What is the number on the third card?

Answer: .....

(d) He holds up a fourth card. He says, *'If I multiply the number on this card by itself, and then subtract the result from 100, the answer is 36.'*
What is the number on the fourth card?

Answer: .....

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[23]

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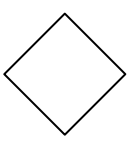


40. (a) Anna's age is twice that of David's and half that of Preeya's. The total of all their ages is 21.

How old is Preeya?

Answer: .....

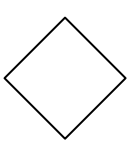
(b) Pritesh is taller than Davina who is taller than Alicia.

The difference in height between Pritesh and Davina is the same as the difference in height between Davina and Alicia.

The total of their heights is 300 cm.

How tall is Davina?

Answer: ..... cm



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41. $c*d$ means multiply c by itself and then add c times d.

e.g.	3* 4
means	3×3 + 3×4
which equals	9 + 12
which gives an answer of	**21**

(a) Find the value of $6* \frac{1}{3}$.

Answer: .....

(b) $3*x$ gives 24.
What is x?

Answer: .....

(c) $y*y$ gives 32.
What is y?

Answer: .....

[25]

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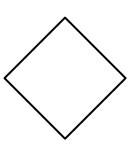
42. Find the smallest number which leaves a remainder of 1 when divided by 5 or 6 or 7.

Answer: .....

END

[26]