The London Independent Girls' Schools Consortium

Mathematics Sample Questions

- Group I and Group 2 Mathematics' papers are each 1hour and 15minutes long.
- No calculators or rulers are allowed; girls are allowed to use a pencil and a rubber.
- Girls are advised that rough working should be written in the space near the question and they will be asked not to rub anything out.
- If a girl cannot do a question she is advised to go on to the next one.

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SAMPLE QUESTIONS

1.
$$\begin{array}{r} 13042 \\ +\ 2163 \\ \hline \\ \hline \end{array}$$

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2. Subtract 588 from 704

Answer ……..

3.
$$7\overline{)6342}$$

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4. a). What is $\frac{1}{9}$ of 135?

Answer: ……

b). What is $\frac{5}{9}$ of 135?

Answer: ……

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5. Write in order of size with the smallest first

11.01 $\quad 10\frac{1}{2}$ $\quad$ 10.11 $\quad$ 11.1

Answer: ……

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6. Multiply 64 by 37

Answer: ……

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7. It takes Lucy 23 minutes to walk to her piano lesson. What time must she leave home if she has to be at her lesson by quarter past five?



Answer: ……

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8. Which number between 70 and 90 can be divided exactly by both 8 and 9?

Answer: ……

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9. Add together the following numbers:

eleven million
twelve thousand
thirteen hundred
fourteen

Answer: ……

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10. Fill in the spaces in this shopping list and complete the total cost



	COST
3 bars of chocolate at 88p each	……
500g of apples at 84p per kg	……
2 litres of milk at 40p per 0.5litre	……
TOTAL	_____

What would my change be from a £10 note?

Answer: £……

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11. The temperatures recorded on a winter's day in 4 different European cities are shown below: -

- 10°C 16°C 9°C - 2°

What is the difference in temperature between the hottest and coldest cities?

Answer: ……°C

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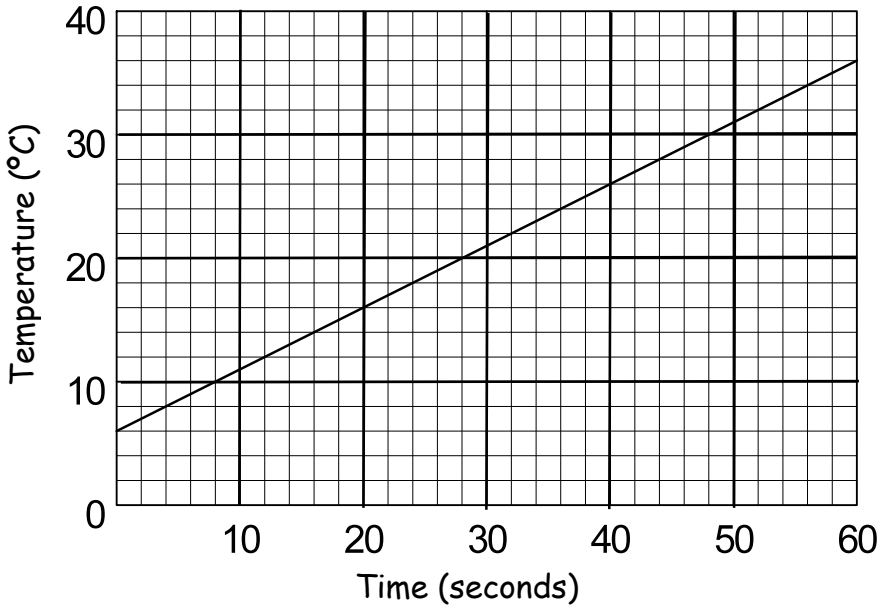
12. At a school picnic, 15 sandwiches are provided for every 8 children.
How many sandwiches are needed for 56 children?



Answer: ……

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13. A liquid is being heated slowly. This graph shows how the temperature of the liquid increases during the first minute.



a. What was the temperature of the liquid after 40 seconds?

Answer: ……°C

b. What was the increase in temperature in the first 20 seconds?

Answer: ……°C

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14. This medicine bottle contains 240 ml.
How many days should the medicine last?



Answer: ……

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15. Look at the details of the three dogs.



Jasper
3 years 10 months
12.7 kg



Rover
5 years 3 months
32.8 kg



Spot
6 months
5.1 kg

a). What is the total weight of the three dogs?

Answer: ……kg

b). How much heavier is Rover than Spot?

Answer: ……kg

c). How old in years and months will Jasper be when Spot is 1 year old?

Answer: ……

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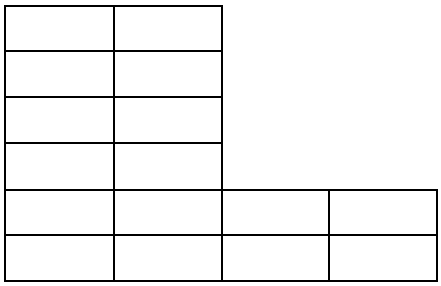
16. In a money-bag there are an equal number of 2p's, 5p's and no other coins. How many coins are in the bag if altogether there is £1.26?



Answer: ……

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17. Shade in $\frac{5}{8}$ of this pattern:



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18. Sam goes on a train journey from London to Aberdeen. The train stops at Durham on the way. The whole journey from London to Aberdeen is 524 miles and from Durham to Aberdeen is $269\frac{1}{4}$ miles.

How far is the journey from London to Durham?



Answer: …… miles

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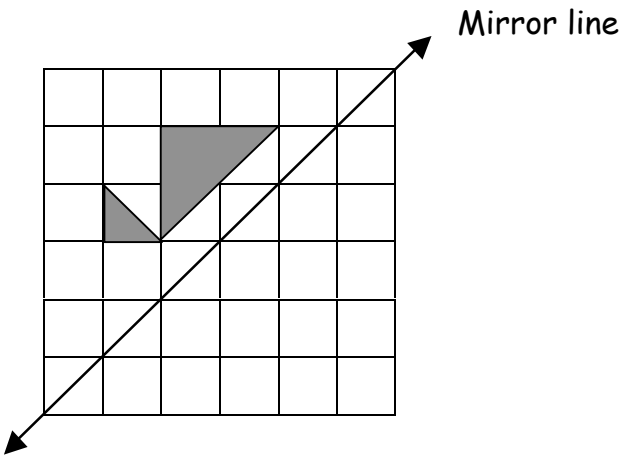
19. Two numbers add up to 15 and make 54 when multiplied together.

What are the two numbers?

Answer: …… and ……

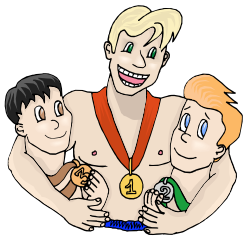
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20. Complete the diagram so that the line shown is a mirror line.



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21. Mathland won 20 medals at the Olympics.



4 medals were gold,
45% were silver,
the rest were bronze.

a). What percentage were gold?

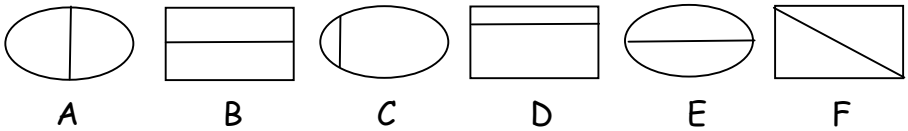
Answer: .....

b). How many medals were bronze?

Answer: .....

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22. Which two shapes do not belong with the other four?

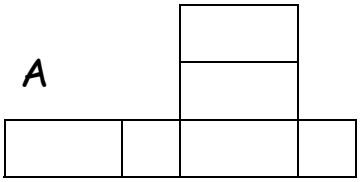


Answer: ..... and .....

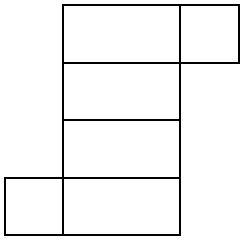
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23. Which of the nets shown can be folded to make a closed box?

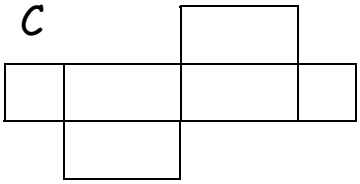
A



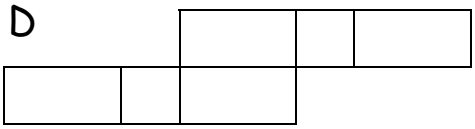
B



C

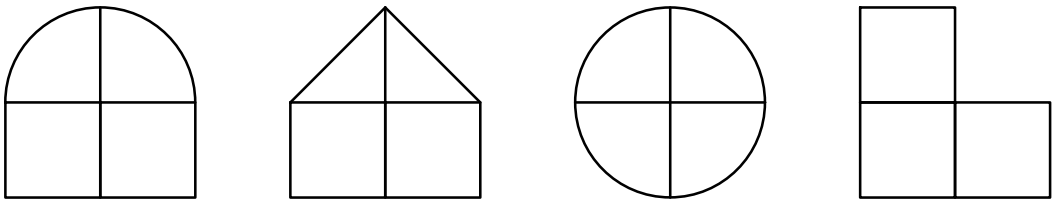


D



Answer: ……

24.



1 2 3 4

a). Which shape has the largest area?

Answer: ……

b). Which shape has the largest perimeter?

Answer: ……

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25. Max, Samantha and their two children fly to Jamaica for a holiday. They plan to take a boat trip while they are there. If they book this trip before they leave England, the price is £33 for each person with no reductions for children.

a). How much would this boat trip cost?



Answer: £ .....

b). Max decides to book the trip in Jamaica after they have arrived. The cost is 1200 Jamaican dollars per adult and 900 Jamaican dollars per child.

What is the total cost of the trip in Jamaican dollars?

Answer: $.....

c). There are 40 Jamaican dollars to the pound.
What is the cost of the trip in £'s?

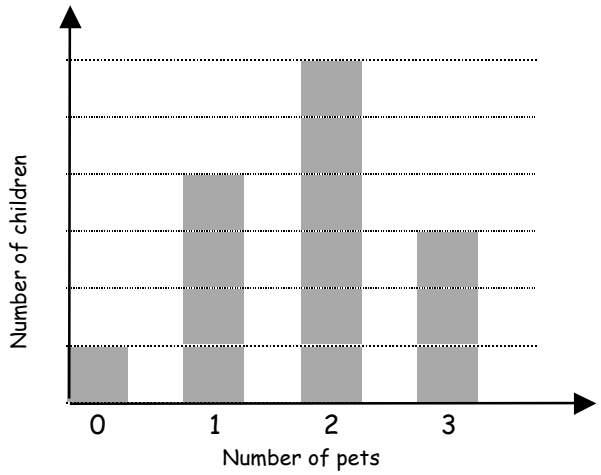


Answer: £ .....

d). How many £'s does Max save by booking this trip after arriving in Jamaica?

Answer: £ .....

26. The bar chart shows the number of pets that children in a school own.
If 120 children have 2 pets, write 120 in the correct place on the vertical scale.



a). How many children had no pets?

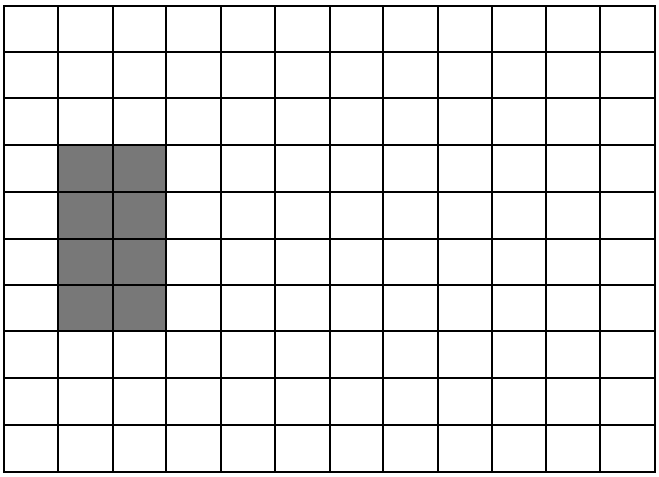
Answer: ……

b). How many pets do children in the school own altogether?

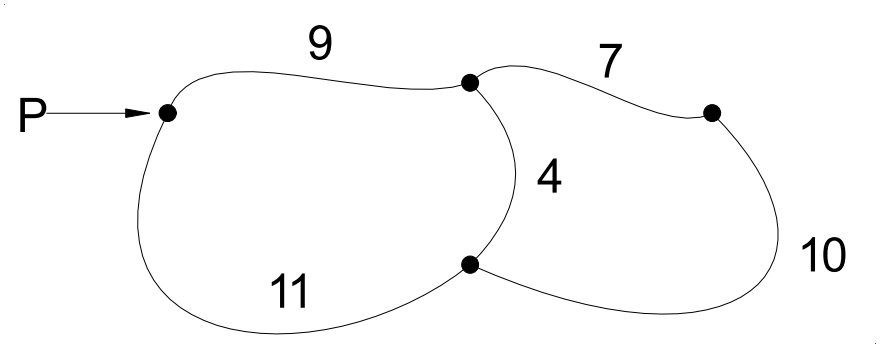
Answer: ……

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27. On the grid draw a triangle with the **same area** as the shaded rectangle.



28. This is a simple map:

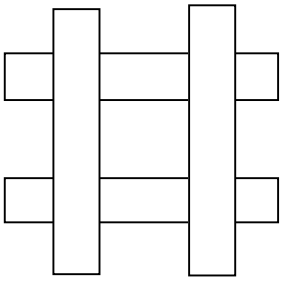


If every path must be walked at least once, find the shortest distance from P back to P. The distances are shown in km.

Answer: ……km

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29. Four strips of paper are stuck on a table as shown. Each one is a rectangle 12cm long and 2cm wide.

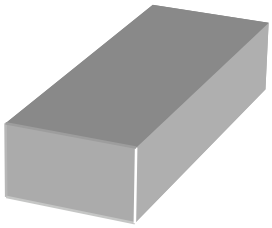


What area of the table is covered?

Answer: ……cm^2

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30. A cuboid has faces with areas 24, 32 and 48 square centimetres.
What are the lengths of its sides?



Answer: …… cm, …… cm, …… cm

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31. R*(a)* represents a mathematical rule.
The rule for R *(a)* is "write down the remainder when *a* is divided by 5."

e.g. R (23) = 3 because 23 ÷ 5 gives a remainder of 3.

a). Find R (8) Answer: ……

b). Find R (21) x R (34) Answer: ……

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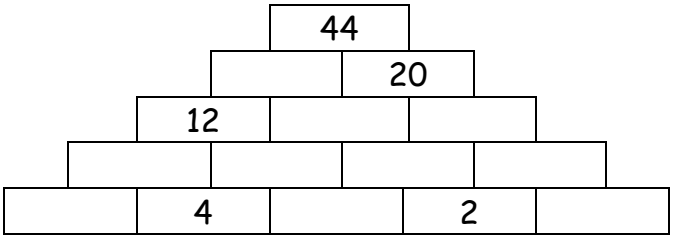
32. What is the angle between the hands of a clock at 2.30pm? (Remember that the hour hand moves as well!)

Answer: ……

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33. In this pyramid, each brick contains a number.
The number on each brick is found by adding the numbers on the two bricks below it.

Fill in the missing numbers on the bricks.



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34. The last part of a telephone number has four digits, e.g.

7814 1487 2103 2772

The last part of the telephone number can start with any digit apart from zero.
The other three digits can be any number. How many four digit numbers are there?

Answer: .....

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35. 

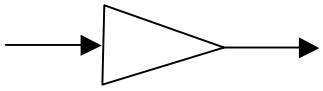
6 lollies and 3 ice-creams cost £8.52
3 ice-creams and 6 drinks cost £9.24
What would the cost of 1 lolly, 1 ice-cream and 1 drink be?

Answer: £ .....

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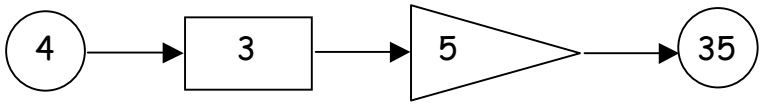
36. In this machine


means ***add*** the number inside

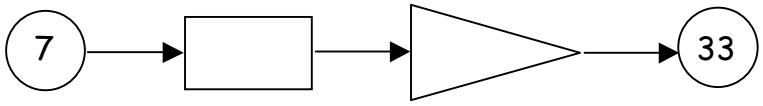
and 
means ***multiply*** by the number inside

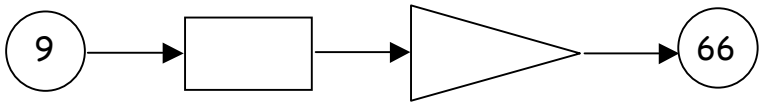
The **first** number (in the circle) is always **bigger** than the **second** number.

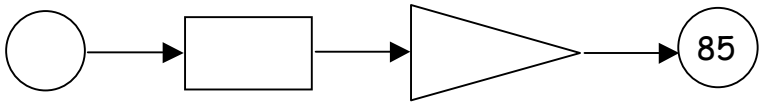
All the missing numbers are less than 10.

So 

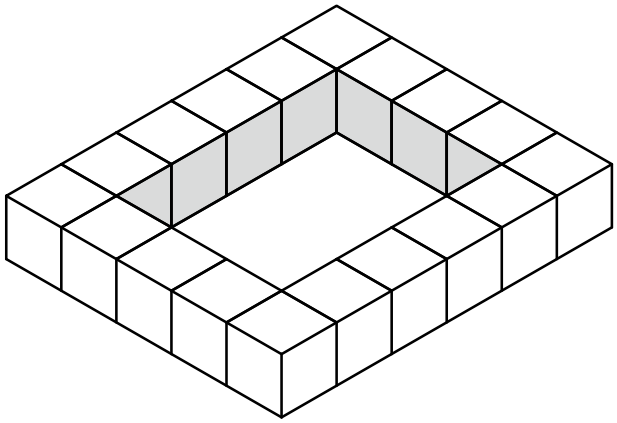
Find the missing numbers

a). 

b). 

c). 

37. This is a 6 by 5 skeleton rectangle.



a). How many cubes do you need to make it? ……

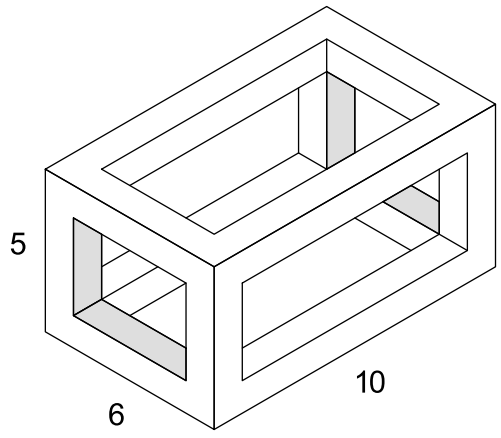
b). What size is the 'hole' in the middle? …… by ……

How many cubes do you need to make a skeleton rectangle

c). 10 by 7? ……

d). 20 by 22? ……

You now make a skeleton box (cuboid). It measures 6 by 5 by 10.



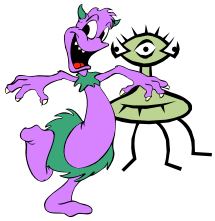
e). How many cubes do you need? ……

38.  Six children at a birthday party received presents from a lucky dip. Their ages were from 5 to 10 years old and all were different ages.

Tom and the five year old got a piggy bank. 



Mary and the six year old got a jack in the box.

Both the 7 year old and the 8 year old got toy monsters. 

Priya and Mary go to a different school from the seven year old whose hobby is stamp collecting.

Priya, who will be 9 years old on her next birthday, and the five year old are shorter than Tom.

Mary is twice Charlie's age.

George tried to frighten the others with his toy monster.

Mary's best friend Silma got a jack in the box.

In the table, fill in the age of each child and the present each receives.

Name	Age	Present
Tom		
Mary		
Priya		
Silma		
Charlie		
George		

39 When Mr Jarman was thirty-two years old, he decided to become a mathematics teacher. He stayed at his first school for 16 years. After that, he decided to change school. He stayed at his second school for 8 years, before changing again. He stayed at his next school for only 4 years, before changing again, and he keeps changing schools, spending half as much time at each school as he did at the previous one.

If this pattern continues, how many different schools will he have taught at when he is aged

a) 51 ?

Answer:…….

b) 61 ?

Answer: …….

c) $63\frac{2}{3}$?

Answer: …….

THE END