



**Sydenham**  
High School

**G D S T**  
GIRLS' DAY SCHOOL TRUST

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# Sample Maths Year 7 Entrance Paper

## Non-Calculator

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Non-Calculator

Time allowed: 1 hour  
Total for paper: 60 marks

Name: .....

**Write your answers in the spaces provided.**  
**You must write down all the stages in your working.**

**Question 1**

Calculate  $253 + 196$

.....  
(1 mark)

**Question 2**

Calculate  $123 - 35$

.....  
(1 mark)

**Question 3**

Calculate 30% of 560

.....  
(1 mark)

**Question 4**

40% of Megan's number is 96.

What is 60% of Megan's number?

.....  
(2 marks)

**Question 5**

Calculate  $15.27 - 6.34$ .

.....  
(2 marks)

**Question 6**

Calculate  $623 \times 76$

.....  
(2 marks)

**Question 7**

Calculate  $5 + 8^2 \div 2$

.....  
(2 marks)

**Question 8**

Calculate

$$\frac{5}{8} - \frac{1}{5}$$

.....  
(3 marks)

**Question 9**

Calculate  $\frac{7}{12}$  of 408

.....  
(2 marks)

**Question 10**

These are some of the ingredients used to make 12 flapjacks.

**Flapjack Recipe**

240g Butter

80g Sugar

400g Oats

4 tbsp Honey

Gordon is making flapjacks for 30 people.

How many grams of oats will he need?

..... g

(2 marks)

**Question 11**

Write the number 54.879 rounded to the nearest whole number.

.....

(1 mark)

**Question 12**

Put these numbers in order of size.

Start with the smallest number.

$0.89$ ,  $\frac{4}{5}$ ,  $85\%$ ,  $\frac{2}{3}$ ,  $\frac{13}{15}$

.....

(3 marks)

**Question 13**

The numbers in this sequence increase by 7 each time.

3      10      17      ...

The sequence continues in the same way.

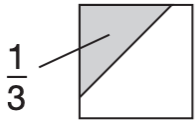
Write two numbers from the sequence that add to make a total of 76.

.....

(2 marks)

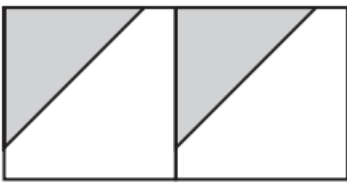
**Question 14**

$\frac{1}{3}$  of this square is shaded.



The same square is used in the diagrams below.

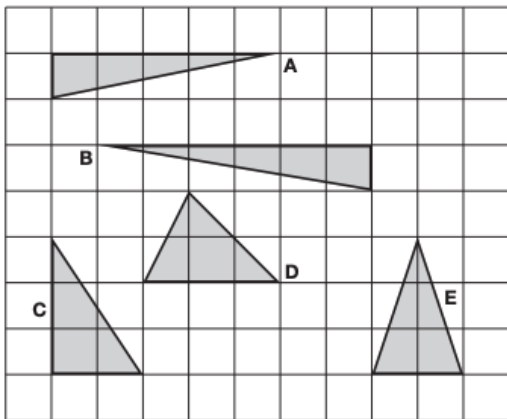
What fraction of this diagram is shaded?



.....  
(1 marks)

**Question 15**

Here are five triangles on a square grid.



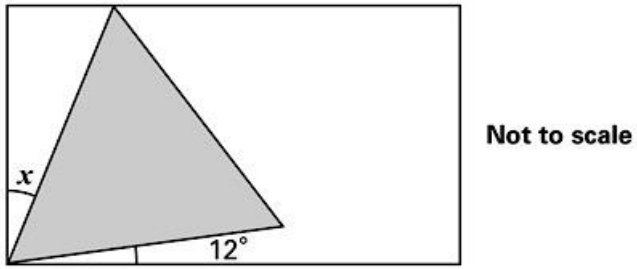
Four of the triangles have the same area.

Which triangle has a different area?

.....  
(2 marks)

**Question 16**

Here is an equilateral triangle inside a rectangle.

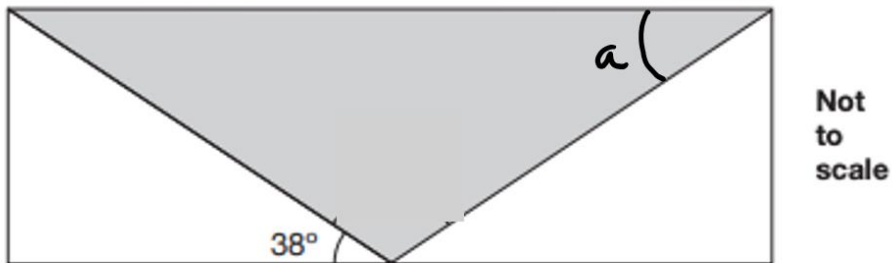


Without using a protractor, find the value of angle  $x$ .

.....°  
(2 marks)

**Question 17**

A shaded isosceles triangle is drawn inside a rectangle.

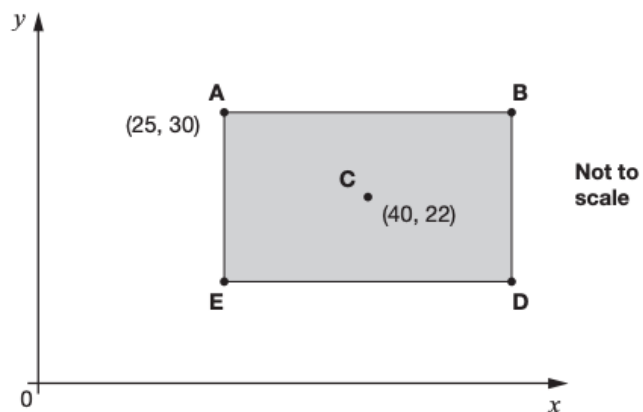


Calculate the size of angle  $a$ .

$a =$  .....°  
(3 marks)

**Question 18**

$ABDE$  is a rectangle on coordinate axes.  
The sides of the rectangle are parallel to the axes.



Point  $C$  is the centre of the rectangle.  
What are the coordinates of  $B$  and  $D$ ?

B:  $x = \dots\dots\dots, y = \dots\dots\dots$

D:  $x = \dots\dots\dots, y = \dots\dots\dots$

(3 marks)

**Question 19**

Insert brackets to make this calculation correct.

$$2 + 7 \times 5 + 3 = 72$$

.....

(1 mark)

**Question 20**

Jamal writes down a sequence of six integers. The rule he uses is 'add the two previous terms to get the next term'

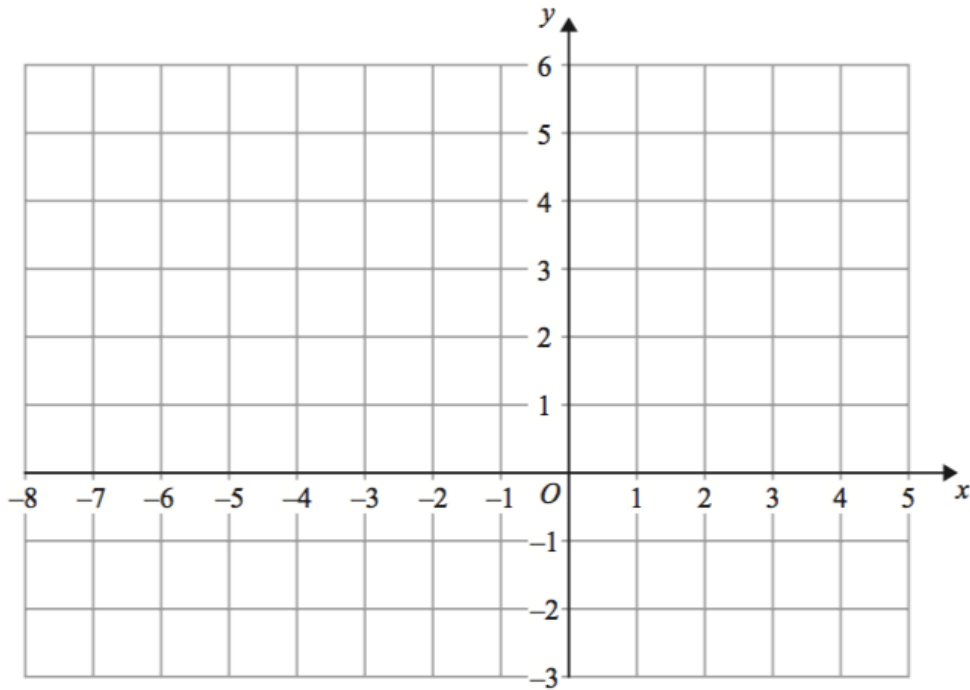
His sequence is  $\_ \_ , \_ \_ , \_ \_ , 8, 13, 21$ .

What is his first term?

.....

(2 marks)

**Question 21**



The points  $(-6, 3)$ ,  $(1, 3)$  and  $(-7, -2)$  are three vertices of a parallelogram.

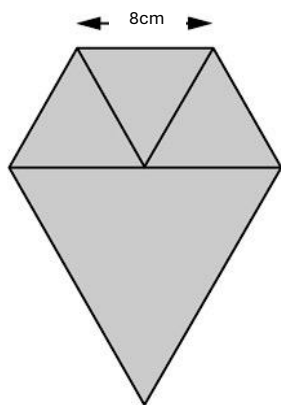
Find the coordinates of the fourth vertex of the parallelogram.

.....

(3 marks)

**Question 24**

Lauren has three small equilateral triangles and one large equilateral triangle. The small triangles have sides of 8 centimetres. Lauren makes this shape.



**Not actual size**

Calculate the perimeter of the shape.  
Do not use a ruler.

..... cm

(2 marks)

**Question 25**

The diagram shows a rectangle measuring 11 cm by 3 cm.

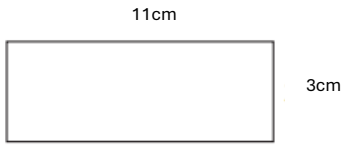
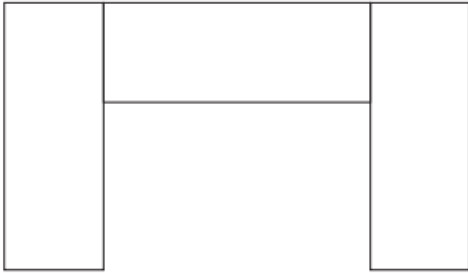


Diagram **NOT** accurately drawn

A shape is made by placing 3 of these rectangles together as shown in the diagram.



Work out the perimeter of the shape.

..... cm

(3 marks)

**Question 26**

This table shows when flights take off at an airport.

Flight number	Destination	Take-off time
AX40	Paris	13:35
BH253	Berlin	14:05
CG008	Rome	15:25
DP369	Paris	15:40
EZ44	Lisbon	16:15
FJ994	Dublin	17:25

a) How many flights take off between 2pm and 5pm?

.....

b) The flight to Dublin takes 50 minutes.  
What time does it arrive in Dublin?

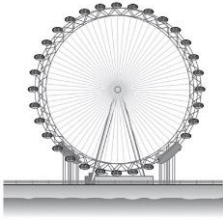
.....

c) How much later does the second flight to Paris take off than the first?  
Give your answer in minutes.

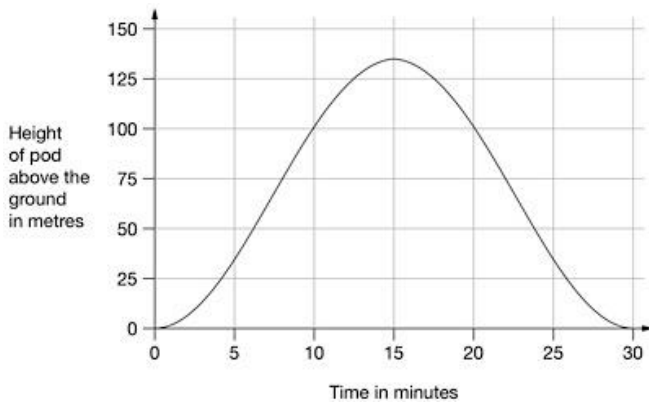
.....

(3 marks)

**Question 27**



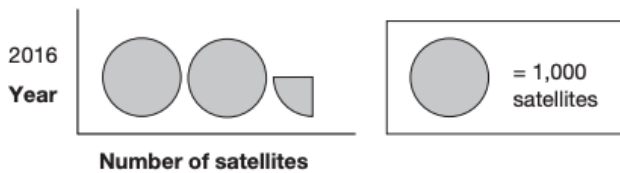
The London Eye is a big wheel with pods to carry passengers. It takes 30 minutes for the wheel to make a complete turn. This graph shows the height of a pod above the ground as the wheel turns.



- a) Approximately how long from the start does it take the pod to first reach a height of 75 metres?  
 ..... minutes
- b) Approximately how many metres above the ground is the pod at its highest point?  
 ..... m  
 (2 marks)

**Question 28**

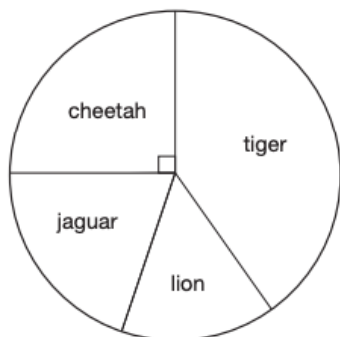
This pictogram shows the number of satellites above the Earth in 2016.



- How many satellites were above the Earth in 2016?  
 ..... satellites  
 (2 marks)

### Question 29

This chart shows the number of different types of big cat in a zoo.  
There are 60 big cats in the zoo altogether.



Here are some statements about the chart.

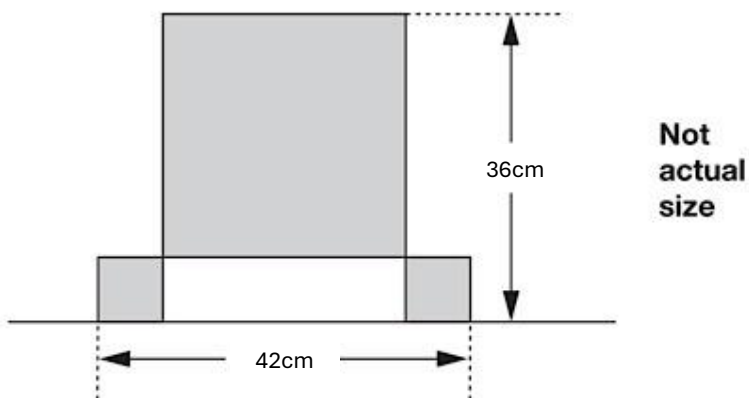
Tick the statements that are true.

- There are more cheetahs than jaguars.
- The total number of lions and tigers is 30
- There are exactly 15 cheetahs.
- There are more than 20 jaguars.

(1 mark)

### Question 30

This design has one large square and two identical small squares.  
The design measures 42 centimetres by 36 centimetres.



Calculate the length of a side of the large square.

..... cm

(3 marks)

**Question 31**

The diagram shows a partially completed magic square, in which all rows, all columns and both main diagonals have the same total.

4		
	5	$y$
2	7	$x$

What is the value of  $x + y$ ?

$$x + y = \dots\dots\dots$$

(3 marks)

**END OF PAPER**