DEPARTMENT FOR CURRICULUM,
RESEARCH, INNOVATION AND LIFELONG LEARNING
Directorate for Learning and Assessment Programmes
Educational Assessment Unit

Annual Examinations for Middle Schools 2018

YEAR 8	MATHEMATICS	TIME: 1h 30min
	Main Paper	

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	Total Main	Non Calc	**Global Mark**
Mark																

DO NOT WRITE ABOVE THIS LINE

Name: _____   Class: _____

**Calculators are allowed but all necessary working must be shown.
Answer ALL questions.**

1. Fill the table below.

    The first question (A) is done for you.

Question	Expression	Nearest Whole	Approximate Answer	Accurate answer correct to 1 d.p.
A	$3.8 \times 7.1 - 8.2$	$4 \times 7 - 8$	20	18.8
B	$23.29 + 8.9 \div 2.5$			

(3 marks)

2. A sack of rice weighs 40 kg.

   Bruce carries $\frac{2}{5}$ of it.   Ruby carries 20% of the remainder.

   a) How much weight is Bruce carrying? Give your answer in **kilograms**.

   Ans: _____ kg

   b) What weight is left after Bruce takes $\frac{2}{5}$ of it?

   Ans: _____ kg

   c) Calculate the weight carried by Ruby. Give your answer in **grams**.

   Ans: _____ g

   (5 marks)

3. Here is a list of ingredients for making muffins.

Ingredients for 10 muffins
80 g oats
60 g butter
30 ml honey
36 g brown sugar

   a) Write the ratio of the amounts of the following ingredients in its simplest form.
   Sugar : Oats : Butter

   Ans: _____

   b) Work out the amount of **honey** needed to make **85 muffins**. Show your working.

   Ans: _____ ml

   (4 marks)

4. a) Fill in the table below with equivalent fractions, decimals and percentages.

Fraction	Decimal	Percentage
$\dfrac{3}{8}$	0.375	
		68%

b) Stefan bought a van. The cost of the van was €24 000 **plus** VAT at 18%.
   i)   Work out the **total** cost of the van including VAT.

Ans: €_____

ii)   Stefan paid €5000 as a deposit.
      He paid the rest of the total cost of the van in 10 equal monthly payments.
      Work out the amount of each monthly payment.

Ans: €_____
(7 marks)

5. Matthew makes this scale drawing to find the height of a building XY.

   a) On the scale drawing, the angle of
      elevation of the top of the building
      from point Z is 26°. What is the
      actual angle of elevation?

                    °
         Ans: _____

Matthew's scale drawing

X

26°

Z   7 cm   Y
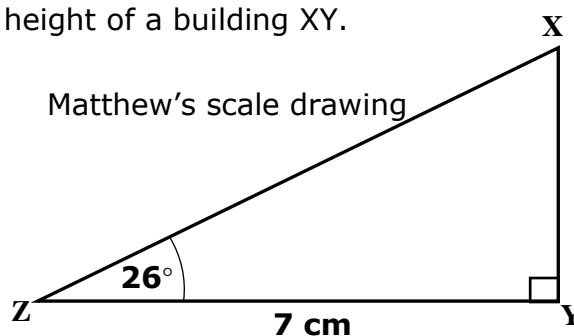
Scale 1 cm : 2 m

   b) By measuring XY, work out the
      actual height of the building.

      Ans: Actual height = _____ m

(3 marks)

6. a) David has 3 bags containing only yellow and green marbles.
   The table shows how many yellow and green marbles there are in each bag.

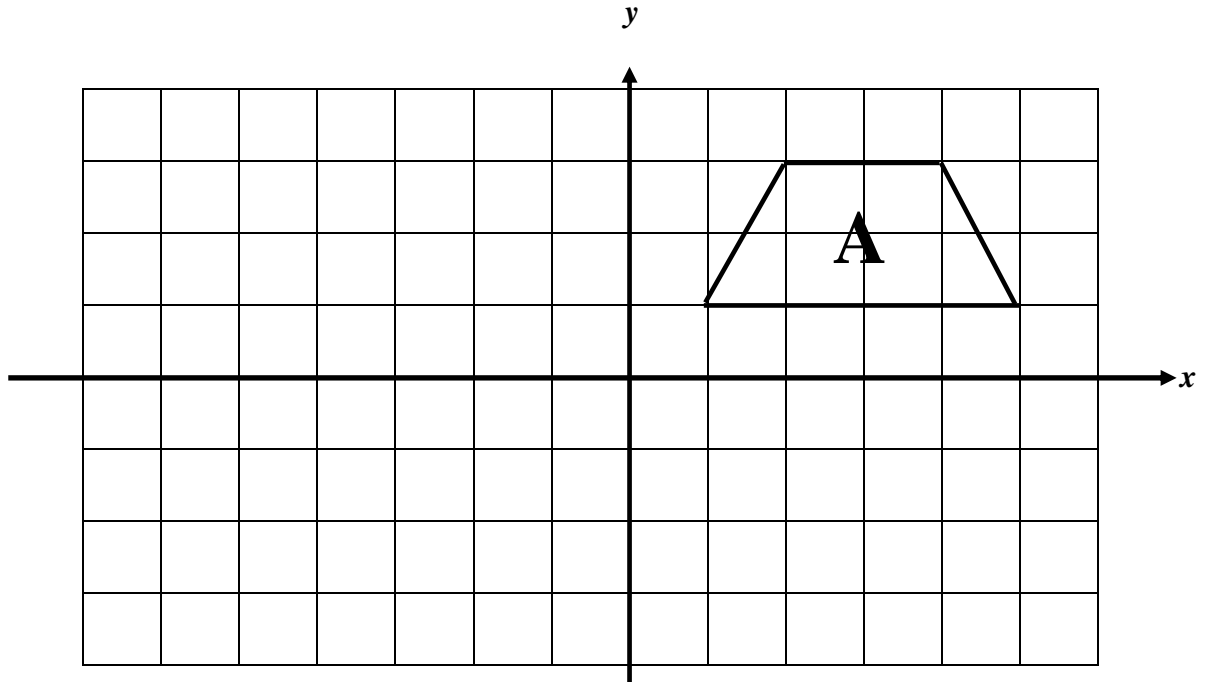|	Bag		
	A	**B**	**C**
Yellow marbles	6	6	6
Green marbles	6	8	3

David takes a marble at random from each bag.
i) Match each bag with the correct probability of choosing a **green** marble.
    The first one is done for you.

Bag	Probability of choosing a green marble
A	$\dfrac{4}{7}$
B	$\dfrac{1}{3}$
C	$\dfrac{1}{2}$

ii) What is the probability that David takes out a blue marble?   Ans: _____
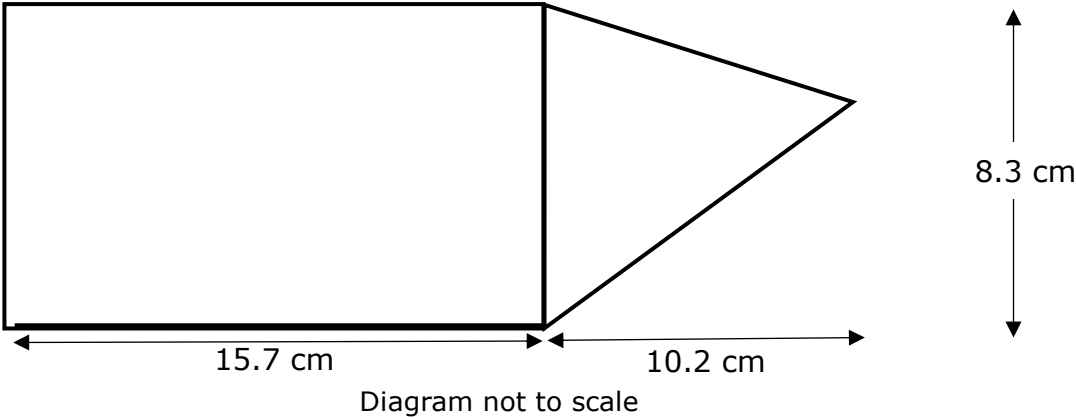
y

b)

i)   **Reflect** Shape A in the *y*-axis. Label the resulting Shape B.

ii) **Translate** Shape A by the vector $\begin{pmatrix} -1 \\ -4 \end{pmatrix}$. Label the resulting Shape C.

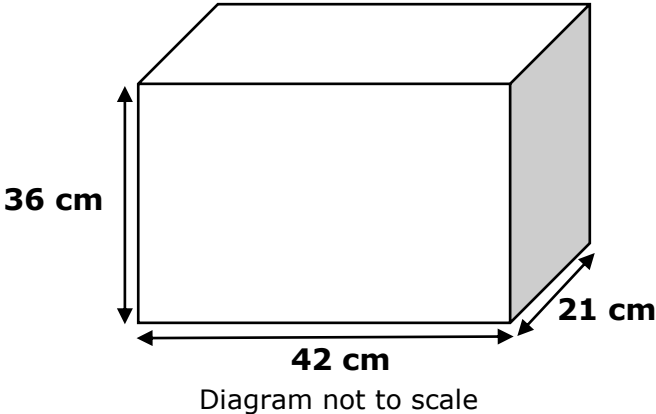(6 marks)

7. a)

8.3 cm

15.7 cm   10.2 cm

Diagram not to scale

The rectangle and triangle above are joined together to form a compound shape. Find the **total area** of the resulting shape. Give your answer correct to the nearest whole number.

Ans: _____ cm²

b) The dimensions of the cuboid are shown below.
   i) Find the volume of the cuboid.

36 cm
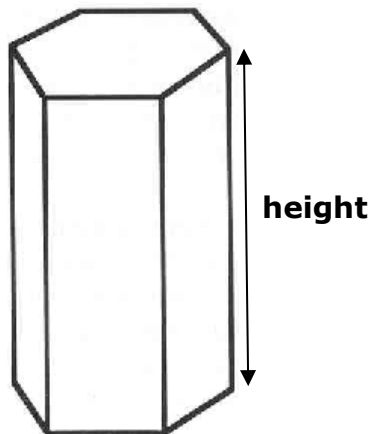
42 cm

21 cm

Diagram not to scale

Ans: _____ cm³

ii) Find its capacity in litres correct to 1 decimal place.

Ans: _____ litres

(8 marks)

8. The **area** of cross-section of this prism is 28.6 cm². The **volume** of the prism is 337.5 cm³. Find the **height** of this prism. Give your answer correct to 1 decimal place.

Ans: _____ cm

(3 marks)

9. a) Write down the formula to work out the **area** of a parallelogram.

Ans: Area **=** _____

b) Write down an **equation** for the **area A**
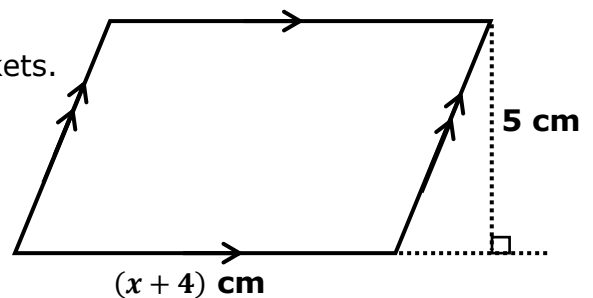
of this parallelogram. Expand the brackets.

5 cm

$(x + 4)$ **cm**

Diagram not to scale

Ans: **A** = _____ cm²

c) Calculate the area when $x = 9$ cm.

Ans: **Area** = _____ cm²

(4 marks)

10. a) A number x is **multiplied** by 4. Then 5 is **added** to the result.
    The answer is Z.

   i) Write a formula for Z in terms of x ii)   Find the value of Z when $x = 2.5$

   Ans: _____   Ans: _____

   b) Factorise completely $12x - 6$ Ans: _____

   c) Solve $5w - 3 = 9 + 2w$

   Ans: _____

   d) $\boldsymbol{n}$ is a whole number. Tick (✓) the correct statement below.

   ☐ 2$\boldsymbol{n}$ must be odd

   ☐ 2$\boldsymbol{n}$ must be even

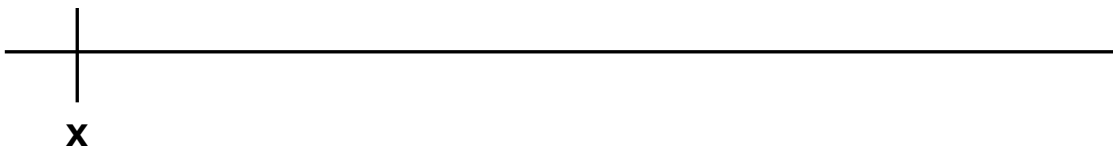   ☐ 2$\boldsymbol{n}$ could be even or odd

   Explain your answer.

   _____

   _____

   (9 marks)

11. Use a ruler and compasses only. All construction lines and arcs must be shown.

a) On the line drawn, mark a point Y such that XY = 10 cm.

X

b) Construct triangle XYZ such that XZ = 8 cm and YZ = 6 cm. Join XZ and YZ.

c) Bisect angle X. Label the point where this bisector meets the line YZ at Q.

d) Measure YQ.   Ans: _____ cm

(5 marks)

12. The children in a class were asked how many pets they have at home. This information is shown in the table below.

Number of pets	0	1	2	3	4
Number of children	4	6	5	7	2

a) What is the total number of children in this class?

Ans: _____

b) What is the modal number of pets?

Ans: _____

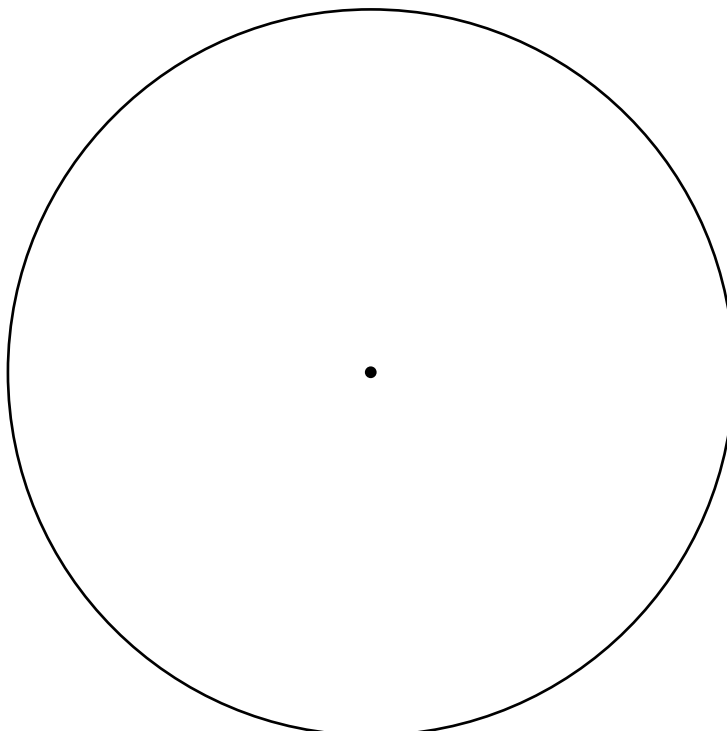c) What is the range of the number of pets?

Ans: _____

d) How many children have more than 2 pets?

Ans: _____

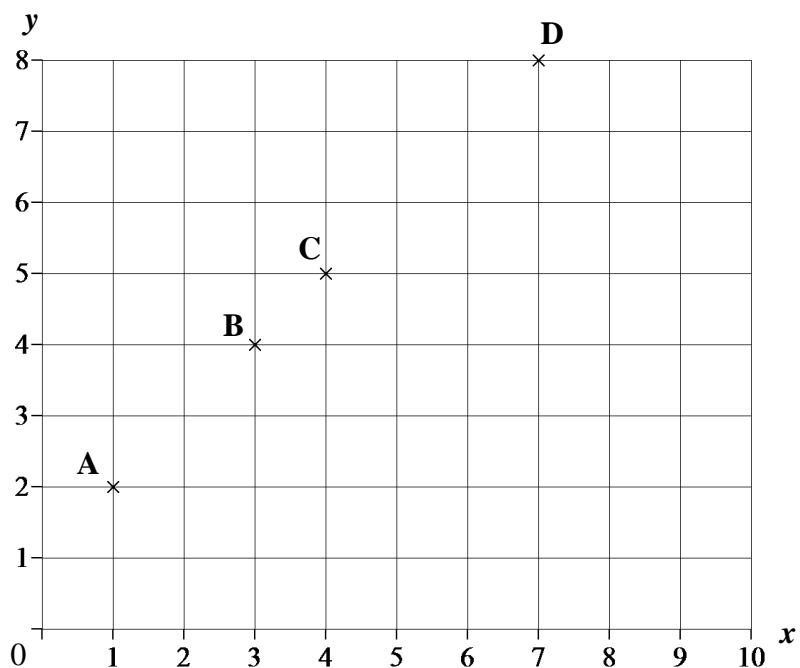e) How many pets are there in all?

Ans: _____

f) Illustrate the information in the table in the pie chart below. Fill in and label the diagram completely.

(10 marks)

13. Some points were plotted on an *x-y* plane.

a) Write down the co-ordinates of the points B and D.

B (_____ , _____)   D (_____ , _____)

b) Join A, B, C and D. What do you notice about the co-ordinates of **each** point on this line?

_____

c) Find the gradient and the *y*-intercept of this line.

Gradient = _____   *y*-intercept = _____

d) Write down the equation that describes the **relationship between *x* and *y* co-ordinates** for the points on this line.

_____

(8 marks)

End of Examination