



FORM 3

MATHEMATICS
Main Paper

TIME: 1 hr 30 min.

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. (a) Choose the correct answer:

$a \times a =$ (i) a^2 (ii) $2a$ (iii) a (iv) 0

Ans: _____

(b) Simplify $2b + 5c + 4b - 3b + 2c$

Ans: _____

(c) Expand $5(3b + 2 - c)$

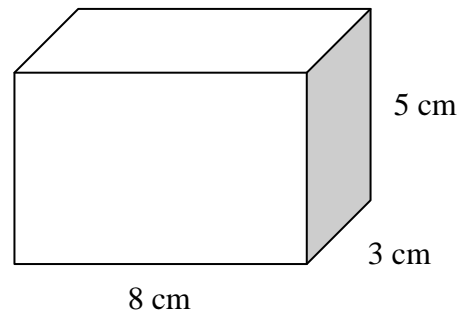
Ans: _____

(d) Solve $2x - 5 = 7$

Ans: _____

(8 marks)

2. (a) Find the **total surface area** of this cuboid.



Ans: _____ cm²

- (b) What is the **volume** of the given cuboid?

Ans: _____ cm³

(7 marks)

3. Some numbers are listed as shown below.

-5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5

Choose a number from the above list to fill the **empty square**, so that the calculation gives:

- (a) the lowest possible answer. Fill in the answer to your calculation.

$$-4 - \square = \underline{\hspace{2cm}}$$

- (b) the highest possible answer. Fill in the answer to your calculation.

$$-4 - \square = \underline{\hspace{2cm}}$$

(2 marks)

4. A programme is 200 minutes long. Write 200 minutes in hours and minutes.

Ans: _____ hours _____ minutes

(2 marks)

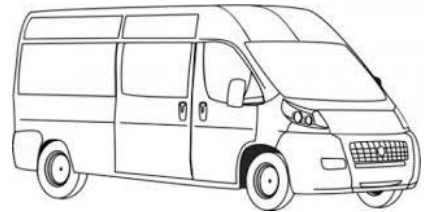
Name: _____	Class: _____
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5. (a) There are **420 vehicles** in a car park. 80 are vans and the rest are cars.

(i) What is the ratio of **vans : cars**. Simplify your answer.

Ans: _____ : _____

(ii) The 80 vans in the car park are white and red in colour. The ratio of white vans is to red vans is **3 : 5**. Find the number of white vans.



Ans: _____ vans

(b) The scale of a drawing is **1 : 500**. What **actual length** is represented by 2.8 cm? Give your answer in metres.

Ans: _____ m

(8 marks)

6. (a) Factorise: $6f + 15g$

Ans: _____

(b) (i) Rearrange the formula $y = 3x - 2$ to **make x the subject of the formula**.

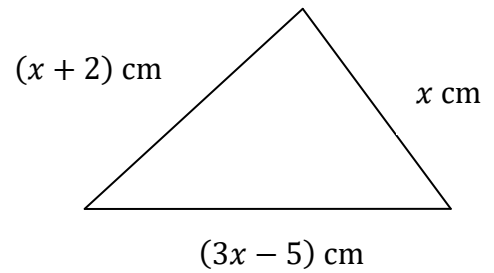
Ans: _____

(ii) Hence find the value of x when $y = 4$.

Ans: $x =$ _____

(6 marks)

7. (a) Write down an **expression** for the perimeter of this triangle.



Ans: _____

(b) Simplify your answer.

Ans: _____

(c) The perimeter of this triangle is 27 cm. Write down an **equation in terms of x** and **solve** it to find the value of x .

Ans: $x =$ _____

(d) Find the **length of the base** of the triangle.

Ans: _____ cm

(7 marks)

8. Jake cycles 12 km at a speed of 18 km per hour. How long does this ride take?

Ans: _____ minutes

(2 marks)

9. (a) Underline the correct answer.

(i) The **sum** of the exterior angles of any polygon is:

(A) 180°

(B) 270°

(C) 360°

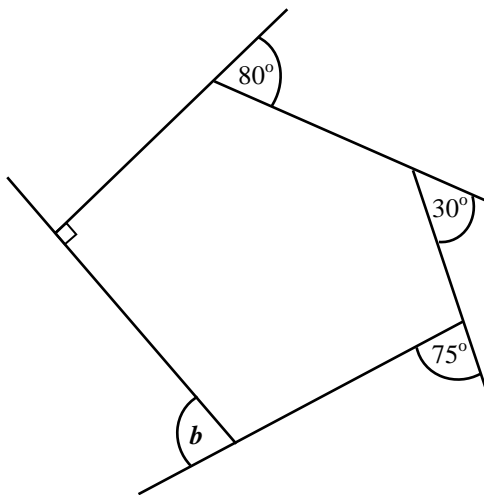
(ii) The size of an exterior angle of a **regular pentagon**.

(A) 360°

(B) 72°

(C) 110°

(b) Calculate the size of the angle marked ***b*** in the following polygon.



Ans: $b =$ _____^o

(6 marks)

10. Find the gradient of a line AB, where $A = (-2, 5)$ and $B = (8, 3)$

Ans: gradient = _____

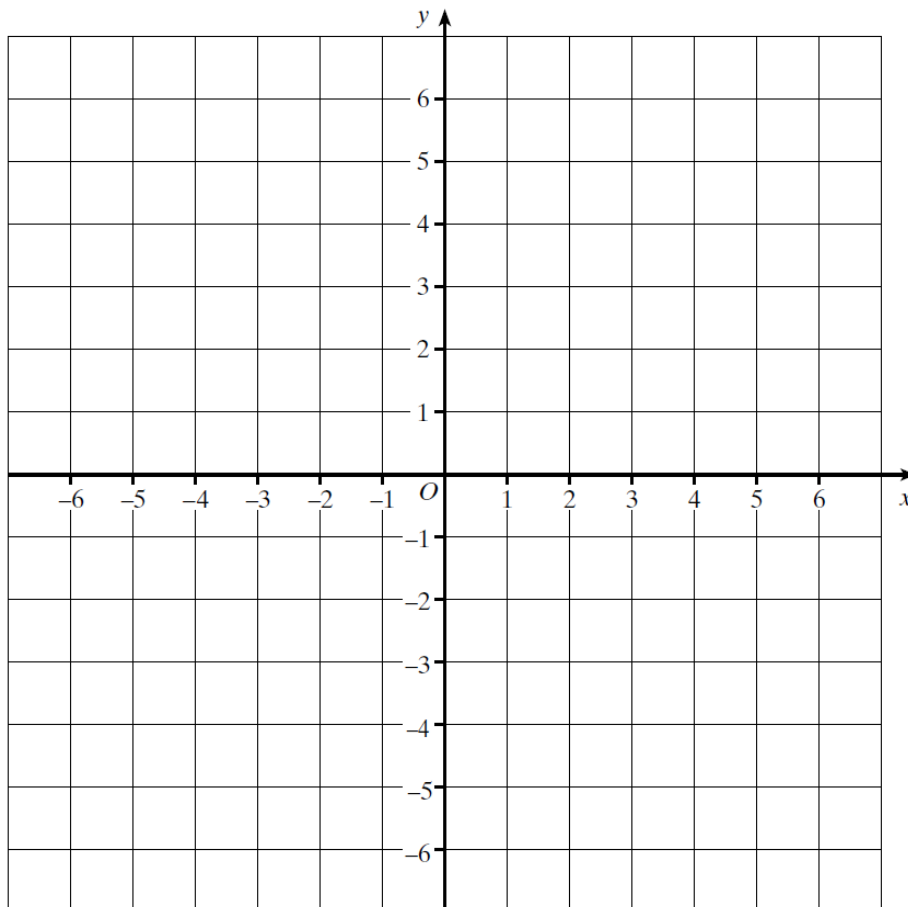
(3 marks)

11. (a) **Complete** the table for the graph $y = 2x - 3$.

x	-1	0	2	4
$2x$				
-3			-3	
y		-3		5

(b) Use the above table to write **4 co-ordinates**:

(c) **Plot** the graph on the grid below.



(d) Use your graph to find the value of y when $x = 3$.

Ans: $y =$ _____

(e) What is the value of the y -intercept?

Ans: _____

(f) Does the point $(-4, -11)$ lie on the line? Show your working.

Ans: _____

(11 marks)

12. (a) Draw a circle of radius 4 cm.

(b) Use this circle to **construct a regular hexagon** of side 4 cm.

(4 marks)

13. A shop sells garden pots for €2.45 **each**.

(a) What is the cost of 4 pots?



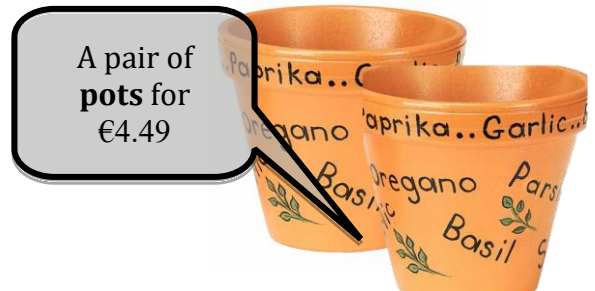
Ans: €_____

(b) How many pots can you buy with €12?

Ans: _____ pots

The shop also sells the pots in **pairs**. One pair of pots costs €4.49.

(c) How many pairs of pots can you buy with €12?



Ans: _____ pairs of pots

(d) If you can choose to buy pots either individually or in pairs, what is the **greatest** number of pots that you can buy with €16?

Ans: _____ pots

(9 marks)

END OF EXAM