

Bronze Level

Model Answers 2

Level	IGCSE
Subject	Maths
Exam Board	Edexcel
Difficulty Level	Bronze
Booklet	Model Answers 2

Time Allowed: 60 minutes

Score: / 50

Percentage: /100

1 (a) Simplify

(i) $a \times a \times a \times a$,

$$a^4$$

$$a^4$$

(ii) $5a \times 6b$,

$$(5)(6)(ab) = 30ab$$

$$30ab$$

(iii) $q^8 \div q^2$.

$$q^{8-2} = q^6$$

$$q^6 \quad (3)$$

(b) Solve $5 - 2y = 12$

$$\begin{aligned} 5 - 12 - 2y &= 0 \\ 5 - 12 &= 2y \\ -7 &= 2y \\ y &= -3.5 \end{aligned}$$

$$y = \underline{-3.5} \quad (2)$$

(c) $v = w^2 - 2w$.

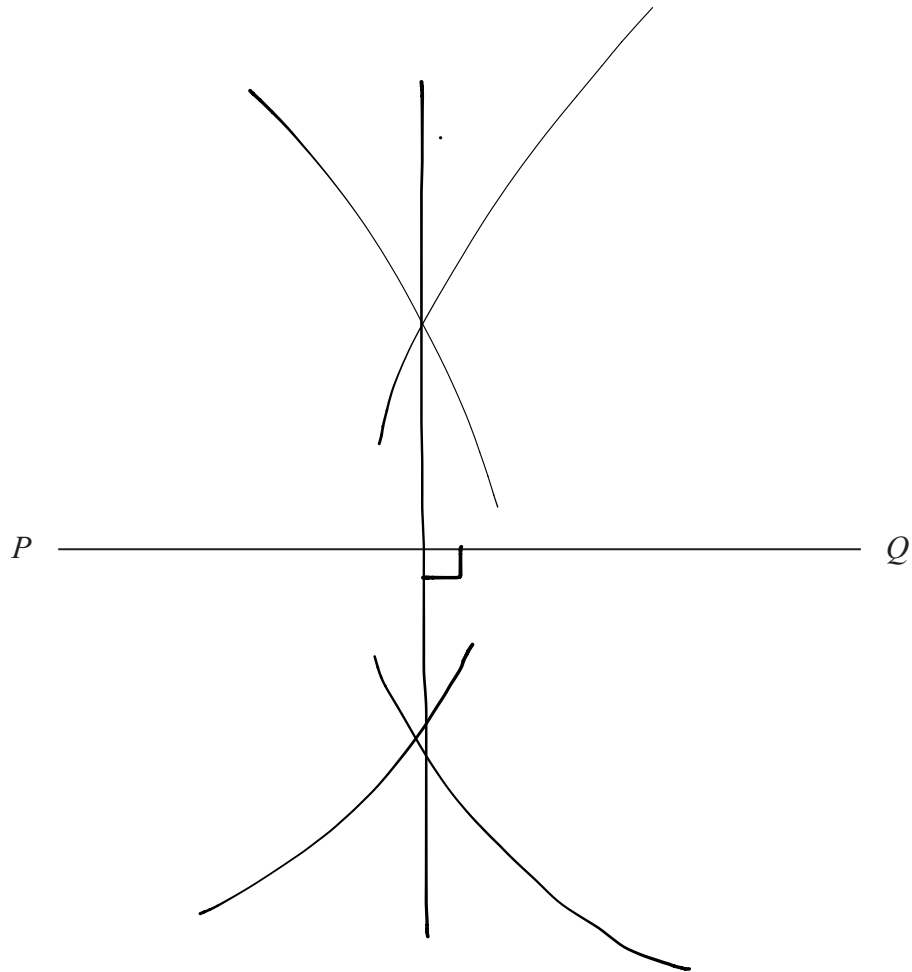
Work out the value of v when $w = 6$

$$\begin{aligned} v &= (6)^2 - 2(6) \\ v &= 36 - 12 \\ v &= 24 \end{aligned}$$

$$v = \underline{24} \quad (2)$$

(Total for Question is 7 marks)

- 2 Use compasses and a ruler only to construct the perpendicular bisector of the line PQ .
You must show all construction lines.



(Total for Question is 2 marks)

- 3 The length of a fence is 137 metres, correct to the nearest metre.

Write down

- (i) the lower bound for the length of the fence,

136.5 metres

- (ii) the upper bound for the length of the fence.

137.5 metres

(Total for Question is 2 marks)

4 Express 126 as a product of its prime factors.

$$2(63)$$

$$2(3)(21)$$

$$2(3)(3)(7)(1)$$

$$\underline{2 \times 3 \times 3 \times 7 \times 1}$$

(Total for Question is 3 marks)

5

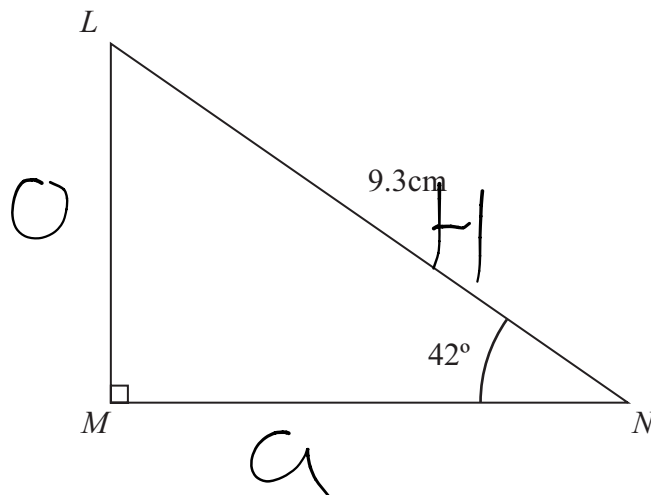


Diagram **NOT** accurately drawn

Calculate the length of LM .

Give your answer correct to 3 significant figures.

$\sin(42)$ \times 9.3 $=$ 6.22

$$\sin(42) \times 9.3 = \underline{\underline{6.22}}$$

6.22 cm

(Total for Question is 3 marks)

6 In January 2007 the population of Canada was 32 million.
7 million of these Canadian people spoke French as their first language.

(a) Express 7 million as a percentage of 32 million.
Give your answer correct to 1 decimal place.

$$\frac{\text{Difference}}{\text{original value}} \times 100$$
$$\frac{7 \text{ million}}{32 \text{ million}} \times 100 = 21.9\%$$

21.9%
..... %
(2)

Between January 2007 and January 2009 the population of Canada increased by 4%.

(b) Increase 32 million by 4%.
Give your answer correct to the nearest million.

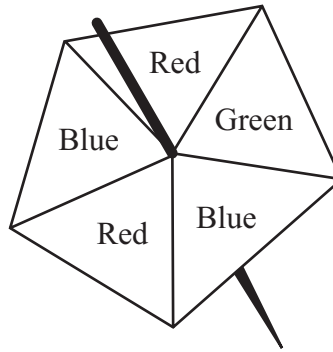
Increase of 4% is equivalent to a multiple of 1.04

$$32 \times 1.04 = 33.28 \text{ million}$$

33 million
..... million
(3)

(Total for Question is 5 marks)

7 Here is a fair 5-sided spinner.



Hans spins the spinner 30 times.

Work out an estimate for the number of times the spinner lands on Red.

$$5/30 \times 30 = 5$$

$$2/5 \text{ probability of landing on red, } 2/5 \times 30$$

$$= 12$$

12

(Total for Question is 2 marks)

8

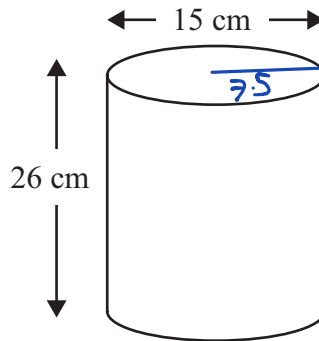


Diagram **NOT** accurately drawn

A cylinder has a diameter of 15 cm and a height of 26 cm.

Work out the volume of the cylinder.

Give your answer correct to 3 significant figures.

$$\text{Volume of a cylinder} = \text{base} \times \text{height} = \pi r^2 \times h$$

$$\pi (7.5)(7.5)(26) = 4590$$

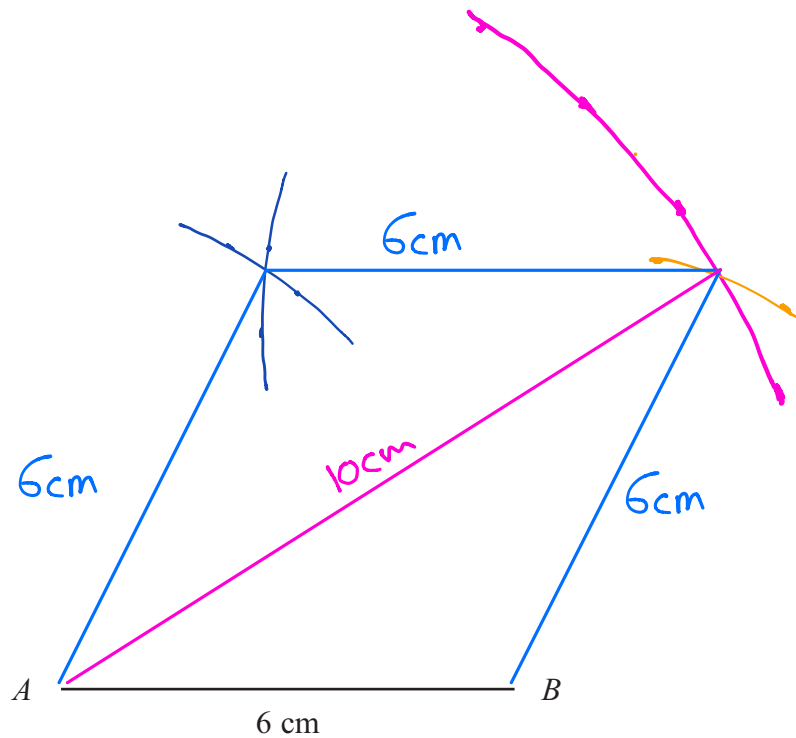
4590 cm³

(Total for Question is 3 marks)

- 9 The lengths of the sides of a rhombus are 6 cm.
The length of the longer diagonal of the rhombus is 10 cm.
 AB is a side of the rhombus.

Construct an accurate, full-size drawing of the rhombus.
You must show all construction lines.

for illustration purposes



10 (a) Factorise $5a - 3a^2$

$$a(5 - 3a)$$

$$a(5 - 3a)$$

.....
(2)

(b) Expand

(i) $2(4 - 3w)$
 $8 - 6w$

$$8 - 6w$$

(ii) $y^2(y + 10)$

$$y^3 + 10y^2$$

$$y^3 + 10y^2$$

.....
(3)

(c) $W = \frac{5.6a}{b^2}$

$a = 1.28$ $b = 0.8$

Work out the value of W .

$$W = \frac{5.6(1.28)}{0.8^2} = 11.2$$

$$W = 11.2$$

.....
(2)

(Total for Question is 7 marks)

- 11 (a) $\mathcal{E} = \{\text{Students in Year 12}\}$
 $G = \{\text{Students who study German}\}$
 $F = \{\text{Students who study French}\}$
 $M = \{\text{Students who study Maths}\}$

(i) $G \cap M = \emptyset$

Use this information to write a statement about the students who study German in Year 12

No students study both maths and German

- (ii) Preety is a student in Year 12
Preety $\notin F$.

Use this information to write a statement about Preety.

She does not study French

(2)

- (b) $A = \{2, 4, 6, 8, 10\}$
 $A \cap B = \{2, 4\}$
 $A \cup B = \{1, 2, 3, 4, 6, 8, 10\}$

List all the members of set B .

B contains 2,4

1,3 aren't included in A but are in A or B so must be in B

1,2,3,4

1,2,3,4

(2)

(Total for Question is 4 marks)

- 12 The table shows information about the numbers of text messages sent by 40 teenagers in one day.

Number of text messages	Number of teenagers	Mid-interval value	
0 to 2	3	1	
3 to 5	6	4	
6 to 8	10	7	
9 to 11	15	10	
12 to 14	5	13	
15 to 17	1	16	

- (a) Write down the modal class.

9-11

(1)

- (b) (i) Work out an estimate for the mean number of texts sent by the 40 teenagers in one day.

$$\begin{aligned} \text{Sum of Class midpoints} \times \text{frequencies} &= \text{estimate of total} \\ 1 \times 3 + 4 \times 6 + 7 \times 10 + 10 \times 15 + 13 \times 5 + 16 \times 1 \\ &= 328 \end{aligned}$$

$$\begin{aligned} \text{Mean} &= 328 / \text{number of teenagers} \\ &= 328 / (3+6+10+15+5+1) \end{aligned}$$

8.2

- (ii) Explain why your answer to part (b)(i) is an estimate.

The midpoint of each class is used not the actual data

(5)

(Total for Question is 6 marks)

13 Work out the value of $\frac{6.7 - 2.5}{2.8 \times 0.4}$

Give your answer as a decimal.

$$\frac{4.2}{1.12} = 3.75$$

3.75

(Total for Question is 2 marks)