Silver Level

Model Answers 3

Level	IGCSE
Subject	Maths
Exam Board	Edexcel
Difficulty Level	Gold
Booklet	Model Answers 3

Time Allowed: **58 minutes**

Score: **/ 48**

Percentage: **/100**

1

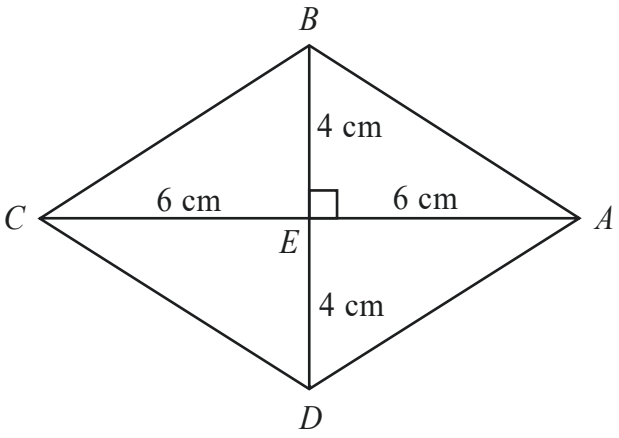


Diagram **NOT** accurately drawn

ABCD is a rhombus.
The diagonals *AC* and *BD* cross at the point *E*.
AE = *CE* = 6 cm.
BE = *DE* = 4 cm.
Angle *AEB* = 90°

(a) Work out the area of the rhombus.

All 4 triangles have the same area and are right angles.

Area of a triangle = 0.5(4)(6) =12
12 x 4 = 48

48 ..... cm^2

(3)

(b) Work out the length of *AB*.
Give your answer correct to 3 significant figures.

Using Pythagoras,

$4^2 + 6^2 = AB^2$
$16 + 36 = AB^2$
$\sqrt{52} = AB = 7.21$

7.21 ..... cm

(3)

(Total for Question is 6 marks)

2 (i) Solve the inequalities $-6 < 4x \leqslant 8$

-1.5 < x ⩽ 2

-1.5 < x ⩽ 2

(ii) n is an integer.

Write down all the values of n which satisfy $-6 < 4n \leqslant 8$

-1.5 < x ⩽ 2

x ≠ -1.5

x = 2

-1,0,1,2

-1,0,1,2

(Total for Question is 4 marks)

3 (a) Find the Highest Common Factor (HCF) of 75 and 90

Factors of 75:
3x5x5

Factors of 90:
2x3x3x5

Multiple of shared factors
3x5

15

(2)

(b) Find the Lowest Common Multiple (LCM) of 75 and 90

Multiple of district factors,

Factors of 75:
3x5x5

2x3x3 x5x5 = 450

Factors of 90:
2x3x3x5

450

(2)

(Total for Question is 4 marks)

4 (a) Find the gradient of the line with equation $3x + 4y = 10$

Ensure equation is in the form y = x + c

4y = 10-3x

y = 2.5 - 0.75x
Gradient = -3/4

-3/4

(3)

(b) Find the coordinates of the point of intersection of the line with equation $3x + 4y = 10$ and the line with equation $5x - 6y = 23$
Show your working clearly.

From previous question : y = 2.5 - 3/4x

And : 5x -6y = 23

Substitue the first equation into the second
5x -6 (2.5 - 3/4x) = 23

Multiply by 4
20x -6(10-3x) = 92
20x + 18x -60 = 92
38x = 152
X = 4

5(4) -6y = 23
20- 6y =
6y =-3
Y = -0.5

(4 , -0.)

(5)

(Total for Question is 8 marks)

5 Solve the inequality $x^2 < 16$

$x^2 = 16$

$x = \pm 4$

Test limits

$x \neq 5$ $x = 3$

$x \neq -5$ $x = -3$

$x < +4$

$x > -4$

or $-4 < x < 4$

$-4 < x < 4$

(Total for Question is 2 marks)

6 (a) Write $2^3 \times 2^6$ as a single power of 2

$(2\times2\times2)\times(2\times2\times2\times2\times2\times2)$

$= 2^9$

2^9

.....

(1)

(b) Write $\frac{3^9}{3^4}$ as a single power of 3

$3^9 - 3^4 = 3^5$

.....

(1)

(c) $\frac{5^n}{5^4 \times 5^6} = 5^3$

Find the value of n.

$\frac{5^n}{5^{10}} = 5^3 \rightarrow 5^n = 5^3 \times 5^{10}$

$= 5^{13}$

$n =$ 5^{13}

(2)

(Total for Question is 4 marks)

7 (a) Solve 3(2x!#!%&!"!'
Show clear algebraic working.

$6x - 3 = 6$

$6x = 9 \rightarrow x = \frac{3}{2}$

$x =$ 3/2

(3)

(b) Solve $\frac{2y+1}{3} = \frac{y-2}{4}$

Show clear algebraic working.

$(2y+1) = \frac{3(y-2)}{4} \rightarrow 4(2y+1) = 3(y-2)$

$\rightarrow (8y+4) = 3y-6 \rightarrow 8y-3y = -6-4$

$\rightarrow 5y = -10 \rightarrow y = -2$

$y =$ -2

(4)

(Total for Question is 7 marks)

8 The table shows information about the number of peas in each of 25 pods.

Number of peas	1	2				
Number of pods	3	6				

$N_p \times N_{pd}$ | 3 | 12 | 15 | 24 | 10 | 6

(a) Work out the mean number of peas in the 25 pods.

$\frac{3+12+15+24+10+6}{25} = \frac{78}{25}$

≈ 3.12

3.12

(3)

(b) Tariq puts the 25 pods in a bag.
He takes at random one of the pods.

Find the probability that he takes a pod with 3 peas or a pod with 4 peas.

$\frac{5+8}{25} = \frac{13}{25}$

13/25

(2)

(c) Laila puts the 25 pods in a bag.
She takes at random two pods without replacement.

Calculate the probability that

(i) there are 3 peas in each of the two pods she takes,

5 in 25
1st × 2nd

$\frac{5}{25} \times \frac{(5-1)}{(25-1)} = \frac{5}{25} \times \frac{4}{24} = \frac{20}{600}$

$\frac{1}{30}$

(ii) there is a total of 4 peas in the two pods she takes.

combinations

3,5 or 6,6 or 5,3

$\frac{3}{25} \times \frac{5}{24} + \frac{6}{25} \times \frac{5}{24} + \frac{5}{25} \times \frac{3}{24}$

$= \frac{60}{600} \rightarrow \frac{1}{10}$

1/10

(5)

(Total for Question is 10 marks)

9 (a) The equation of a line **L** is $2x!\#!\$y = 6$

Find the gradient of **L**.

$y = mx + c \rightarrow m$ is gradient

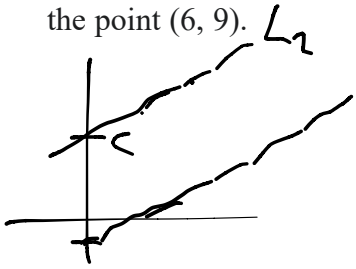
$2x - 6 = 3y$

$\frac{2}{3}x - 2 = y \quad m = \frac{2}{3}$

$2/3$

(3)

(b) Find the equation of the line which is parallel to **L** and passes through the point (6, 9).



(6) $\frac{2}{3}(6) - c = (9)$

$4 - c = 9$

$+5 = c$

$\frac{2}{3}x + 5 = y$

(2)

(Total for Question is 5 marks)