Gold Level

Question Paper 2

Level	IGCSE
Subject	Maths
Exam Board	Edexcel
Difficulty Level	Gold
Booklet	Question Paper 2

Time Allowed: **58 minutes**

Score: **/48**

Percentage: **/100**

Grade Boundaries:

9	8	7	6	5	4	3	2	1
>85%	75%	65%	55%	45%	35%	25%	15%	<15%

1 Clare buys some shares for $\$50x$.
Later, she sells the shares for $\$(600 + 5x)$.
She makes a profit of $x\%$

(a) Show that $x^2 + 90x - 1200 = 0$

(3)

(b) Solve $x^2 + 90x - 1200 = 0$
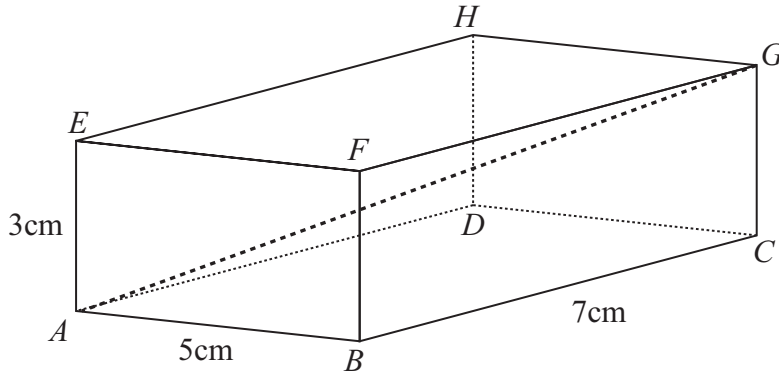Find the value of x correct to 3 significant figures.

$x =$ ....

(3)

(Total for Question 1 is 6 marks)

2

Diagram **NOT**
accurately drawn

The diagram shows a cuboid *ABCDEFGH*.
AB = 5cm
BC = 7cm
AE = 3cm

(a) Calculate the length of *AG*.
    Give your answer correct to 3 significant figures.

.... cm

(3)

(b) Calculate the size of the angle between *AG* and the plane *ABCD*.
    Give your answer correct to 1 decimal place.

°
....

(2)

(Total for Question 2 is 5 marks)

3 Express $\sqrt{48} + \sqrt{108}$ in the form $k\sqrt{6}$ where k is a surd.

....

(Total for Question 3 is 3 marks)

4
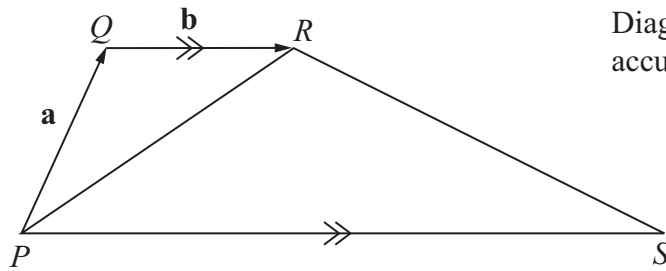
Diagram **NOT**
accurately drawn

The diagram shows a trapezium *PQRS*.
PS is parallel to *QR*.
PS = 4*QR*.

$$\overrightarrow{PQ} = \mathbf{a} \qquad \overrightarrow{QR} = \mathbf{b}$$

(a) Find, in terms of **a** and/or **b,**

(i) $\overrightarrow{PS}$

....

(ii) $\overrightarrow{PR}$

....

(iii) $\overrightarrow{RS}$.

....

(3)

The point *T* lies on the line *PR* such that *PT* : *TR* = 4 : 1

(b) Given that $\overrightarrow{TS} = k \overrightarrow{QT}$, find the value of *k*.

k = ...

(3)

(Total for Question 4 is 6 marks)

5 A bag contains 60 beads.
    x of the beads are red and the rest are green.
    Altaaf takes at random a bead from the bag.

(a) State, in terms of x, the probability that Altaaf takes a red bead.

....
    (1)

Altaaf puts his bead back in the bag.
Another 20 **red** beads are added to those in the bag.
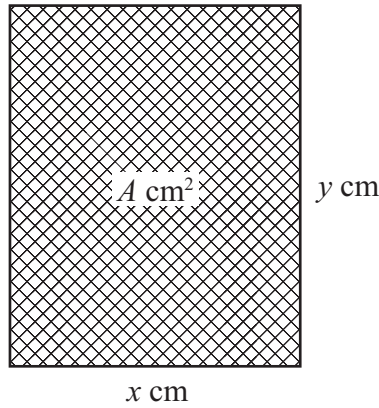The probability that Altaaf takes a red bead is now doubled.

(b) (i)   Use this information to write down an equation in x
        and show that your equation can be expressed as $8x = 3(x + 20)$

(ii) Solve $8x = 3(x + 20)$
        Show your working clearly.

$x =$ ....
        (5)

(Total for Question 5 is 6 marks)

6

y cm

A cm^2

x cm

The diagram shows a rectangular photo frame of area A cm^2.
The width of the photo frame is x cm.
The height of the photo frame is y cm.
The perimeter of the photo frame is 72 cm.

(a) Show that $A = 36x - x^2$

(3)

(b) Find $\dfrac{\mathrm{d}A}{\mathrm{d}x}$

....

(2)

(c) Find the maximum value of A.

$A =$ ....

(3)

(Total for Question 6 is 8 marks)

7 Two small magnets attract each other with a force, F newtons.
F is inversely proportional to the square of the distance, d cm, between them.

When $d = 2$, $F = 12$

(a) Express F in terms of d.

....

(3)

(b) Calculate the value of F when $d = 5$

$F = $ ....

(1)

(c) Calculate the value of d when $F = 3$

$d = $ ....

(2)

(Total for Question 7 is 6 marks)

8 The incomplete table shows information about the times, in minutes, that runners took to complete a race.

Time (t minutes)	$30 \leqslant t < 35$	$35 \leqslant t < 40$	$40 \leqslant t < 50$	$50 \leqslant t < 60$	$60 \leqslant t < 80$
Number of runners	12	20		12	16

(a) Use the histogram to calculate the number of runners who took between 40 and 50 minutes to complete the race.

....

(2)

(b) Complete the histogram for the remaining results.
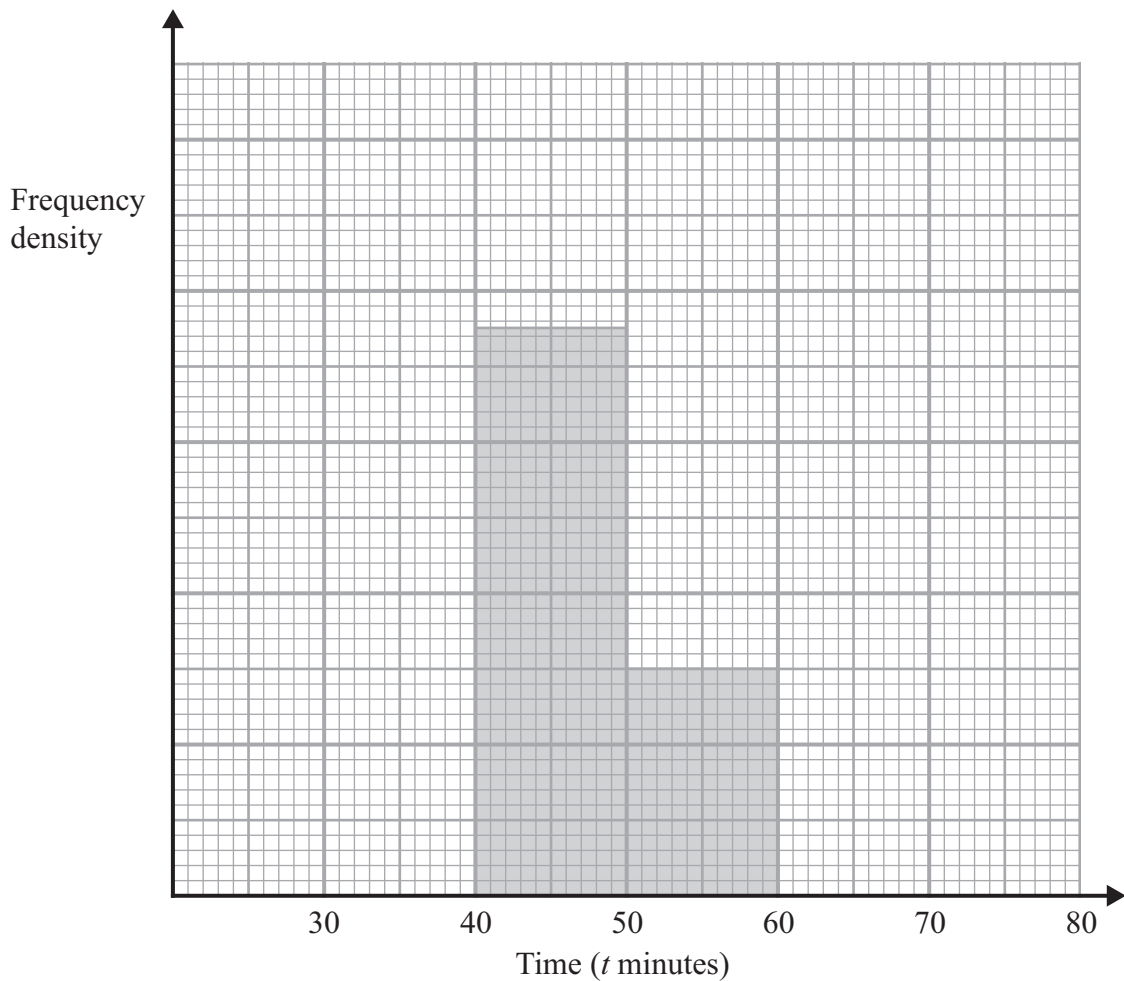
(2)

Runners who achieved a time between 37 and 48 minutes to complete the race were each awarded a silver medal.

(c) Calculate an estimate of the number of runners awarded silver medals.

....

(2)

(Total for Question 8 is 6 marks)

9 Show that the recurring decimal $0.1\dot{7} = \dfrac{8}{45}$

(Total for Question 9 is 2 marks)