



Cambridge Assessment
International Education

Example Responses – Paper 2

Cambridge IGCSE™ / IGCSE (9–1)
Mathematics 0580 / 0980

For examination from 2025



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Introduction

The main aim of this booklet is to exemplify standards for those teaching Cambridge IGCSE / IGCSE (9-1) Mathematics 0580 / 0980.

This booklet contains responses to all questions from June 2025 Paper 22, which have been written by a Cambridge examiner. Responses are accompanied by a brief commentary highlighting common errors and misconceptions where they are relevant.

The question papers and mark schemes are available to download from the [School Support Hub](#)

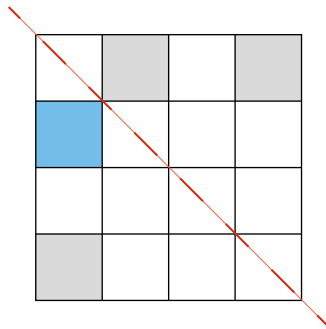
0580 June 2025 Question Paper 22

0580 June 2025 Mark Scheme 22

Past exam resources and other teaching and learning resources are available from the [School Support Hub](#)

Question 1

1 (a)



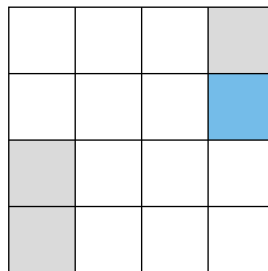
Shade **one** more small square so that the diagram has one line of symmetry.

[1]

Examiner comment

The most common incorrect answer, which was almost as common as the correct answer, was to shade the third square in the bottom row to create a shape with rotational symmetry of order 2.

(b)



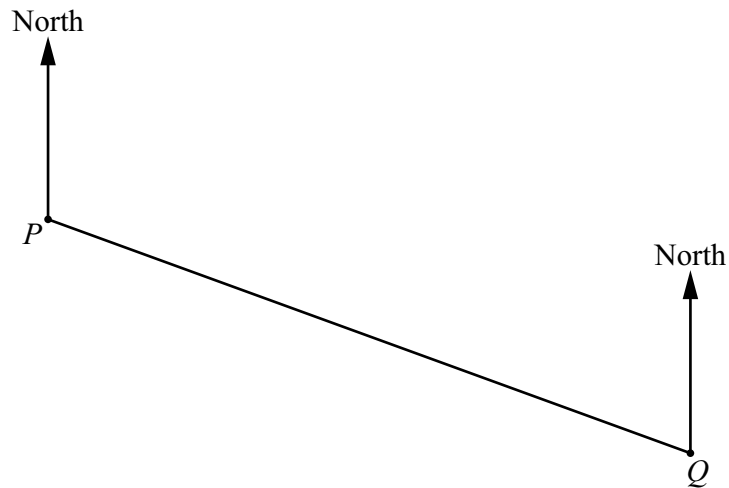
Shade **one** more small square so that the diagram has rotational symmetry of order 2.

[1]

Question 2

- 2 The scale drawing shows the positions of two villages, P and Q .

The scale is 1 cm represents 0.5 km.



- (a) Find the actual distance between village P and village Q .

..... $9 \times 0.5 = 4.5$ km [2]

- (b) Measure the bearing of village Q from village P .

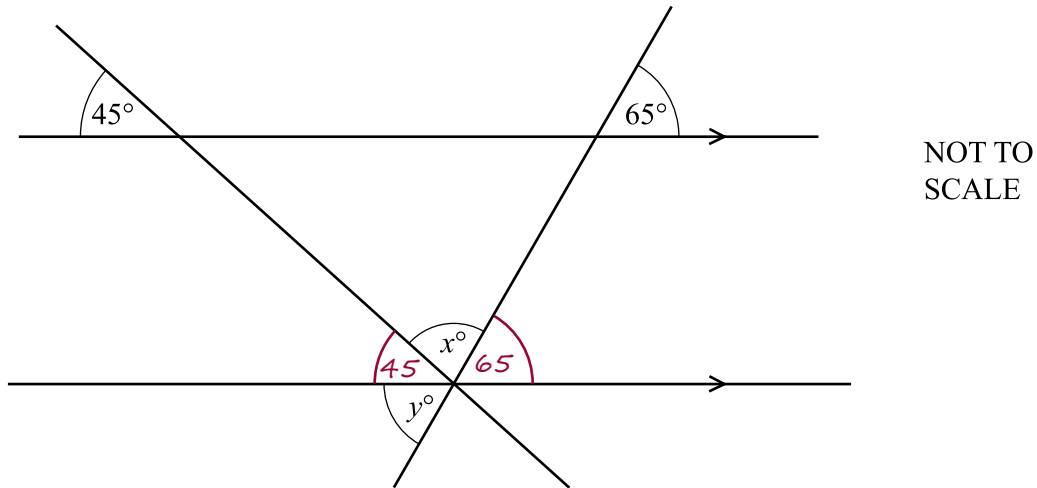
..... 110° [1]

Examiner comment

The most common incorrect answer appeared to come from the incorrect use of protractors (using the wrong scale) with 70° given as the bearing in part (b).

Question 3

3



The diagram shows two straight lines intersecting two parallel lines.

Find the value of x and the value of y .

The 45° marked on the diagram is a corresponding angle with the given 45° , and the 65° marked on the diagram is a corresponding angle with the given 65° .

Using sum of angles on a straight line =
 180° : $45^\circ + 65^\circ = 110^\circ$ so $x = 180^\circ - 110^\circ = 70^\circ$.

Using vertically opposite angles are equal, $y = 65^\circ$

$$x = 70^\circ \dots\dots\dots$$

$$y = 65^\circ \dots\dots\dots$$

[3]

Question 4

4



Samira picks one of these cards at random and replaces it.

(a) Find the probability that she picks an odd number.

$$\frac{4}{7}$$

..... [1]

(b) Samira repeats this 35 times.

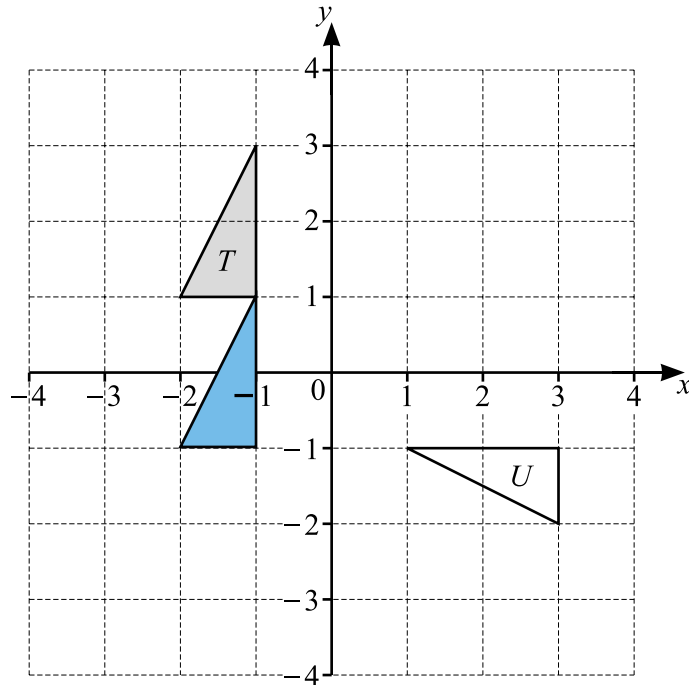
Calculate the number of times Samira is expected to pick an odd number.

$$\frac{4}{7} \times 35 = 20$$

..... [1]

Question 5

5



(a) Translate triangle T by the vector $\begin{pmatrix} 0 \\ -2 \end{pmatrix}$. [1]

(b) Describe fully the **single** transformation that maps triangle T onto triangle U .

Rotation, 90° anticlockwise about centre of rotation $(2, 2)$

..... [3]

Question 6

6 Solve.

(a) $8x + 7 = 39$

$$8x = 32$$

$$x = 4$$

$$x = \underline{4} \dots\dots\dots [2]$$

(b) $2(5y - 1) = 24$

$$10y - 2 = 24$$

$$10y = 26$$

$$y = 2.6$$

$$y = \underline{2.6} \dots\dots\dots [3]$$

Question 7-8

7 These are the first 4 terms of a sequence.

11 8 5 2

(a) Find the next term of this sequence.

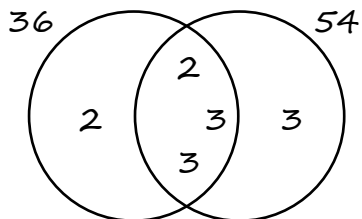
.....⁻¹..... [1]

(b) Find the n th term of this sequence.

.....^{-3n + 14}..... [2]

8 Find the highest common factor (HCF) of 36 and 54.

$$36 = 2^2 \times 3^2 \quad 54 = 2 \times 3^3$$



$$HCF = 2 \times 3 \times 3 = 18$$

.....¹⁸..... [2]

Question 9

9 A is the point $(3, -1)$.

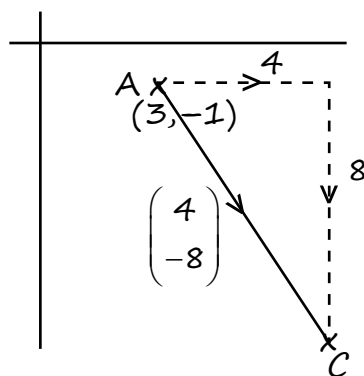
$$\overrightarrow{AB} = \begin{pmatrix} 2 \\ -4 \end{pmatrix}$$

(a) $\overrightarrow{AC} = 2\overrightarrow{AB}$

Find the coordinates of the point C .

$$2\overrightarrow{AB} = 2 \begin{pmatrix} 2 \\ -4 \end{pmatrix} = \begin{pmatrix} 4 \\ -8 \end{pmatrix}$$

$$\begin{pmatrix} 3 \\ -1 \end{pmatrix} + \begin{pmatrix} 4 \\ -8 \end{pmatrix} = \begin{pmatrix} 7 \\ -9 \end{pmatrix}$$



(.....7..... ,-9.....) [2]

Examiner comment

- Question 9 was quite challenging for candidates. A common error was to write $(4, -8)$ as the final answer from the result of .
- Following a correct \overrightarrow{AC} , the most common error was to calculate either $-\overrightarrow{AC}$ to reach the answer $(-1, 7)$, or $\overrightarrow{AC} - \overrightarrow{OA}$ to reach the answer $(1, -7)$.

(b) The length of AB is $k\sqrt{5}$.

Find the value of k .

$$\sqrt{2^2 + (-4)^2}$$

$$= \sqrt{4 + 16}$$

$$= \sqrt{20}$$

$$= \sqrt{4} \times \sqrt{5}$$

$$= 2\sqrt{5}$$

$k = \underline{2}$ [2]

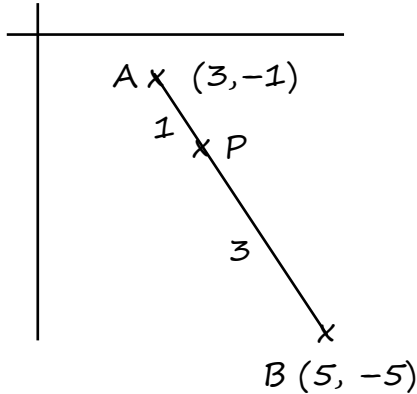
Examiner comment

- Many candidates recognised that Pythagoras' theorem was required, although some did not use vector \overrightarrow{AB} , using the coordinates of A instead.
- Some candidates successfully found the length of AB , but did not simplify the surd correctly, leading to a common incorrect answer of 4, thinking $\sqrt{20} = 4\sqrt{5}$.
- Some wrote a negative number without brackets under the square root sign, i.e. $\sqrt{2^2 + -4^2}$, which on its own could not be awarded a mark, but this was often recovered with the correct values of $4 + 16$ or 20.
- Some candidates did not read the demand of the question to give the value of k and so could not be awarded the final mark for an answer of $2\sqrt{5}$.

(c) P is a point on AB .

$$AP : PB = 1 : 3$$

Find the position vector of P .



$$\overrightarrow{AP} = \frac{1}{4} \overrightarrow{AB}$$

$$\overrightarrow{AP} = \frac{1}{4} \begin{pmatrix} 2 \\ -4 \end{pmatrix} = \begin{pmatrix} 0.5 \\ -1 \end{pmatrix}$$

$$\begin{pmatrix} 3 \\ -1 \end{pmatrix} + \begin{pmatrix} 0.5 \\ -1 \end{pmatrix} = \begin{pmatrix} 3.5 \\ -2 \end{pmatrix}$$

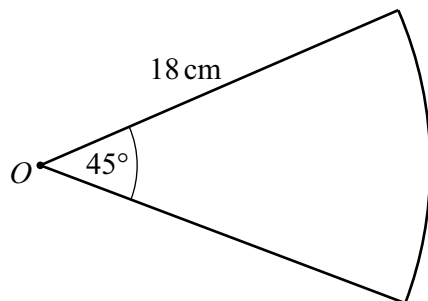
$$\begin{pmatrix} 3.5 \\ -2 \end{pmatrix} \quad [2]$$

Examiner comment

- Only the most successful responses gave the correct answer for this part of the question. Those who drew a diagram tended to demonstrate better understanding of the question.
- It was quite common to achieve a vector of $\begin{pmatrix} 0.5 \\ -1 \end{pmatrix}$, but then not add this to the position vector of A .
- Less successful response misunderstood the ratio, and worked with a multiplier of $\frac{1}{3}$ or 3.
- A few candidates could not multiply $\begin{pmatrix} 2 \\ -4 \end{pmatrix}$ correctly by $\frac{1}{4}$, treating the vector $\begin{pmatrix} 2 \\ -4 \end{pmatrix}$ like a fraction to reach $\begin{pmatrix} 2 \\ -16 \end{pmatrix}$.

Question 10

10



NOT TO
SCALE

The diagram shows a sector of a circle, centre O .
The length of the arc is $n\pi$ cm .

Find the value of n .

$$\text{Area of sector} = \frac{45}{360} \times 2 \times \pi \times r$$

$$= \frac{45}{360} \times 2 \times \pi \times 18$$

$$= \frac{1}{8} \times 36\pi$$

$$= \frac{9}{2} \pi$$

$$n = \dots\dots\dots \frac{9}{2} \dots\dots\dots [2]$$

Examiner comment

- Successful candidates used efficient non-calculator methods and cancelled fractions before multiplying.
- Many candidates set up the correct calculation and were awarded the method mark, but could not evaluate it correctly.
- Some candidates multiplied by 3.14 or $\frac{22}{7}$ and sometimes divided back at the end of their calculation; these responses were mostly unsuccessful. On a non-calculator paper, candidates should avoid the use of 3.14 or $\frac{22}{7}$ and use π in calculations such as these, particularly when the question tells them to.
- Those who were not awarded any marks usually used an incorrect formula, often missing the 2, using 9 rather than 18 or using the area of a circle.

Question 11

11 (a) Write 0.007 08 in standard form.

$$\dots\dots\dots 7.08 \times 10^{-5} \dots\dots\dots [1]$$

(b) Work out $(3.8 \times 10^{22}) + (3.8 \times 10^{23})$.

Give your answer in standard form.

$$\begin{aligned} & (3.8 \times 10^{22}) + (3.8 \times 10^{23}) \\ &= (0.38 \times 10^{23}) + (3.8 \times 10^{23}) \\ &= (0.38 + 3.8) \times 10^{23} \\ &= 4.18 \times 10^{23} \end{aligned}$$

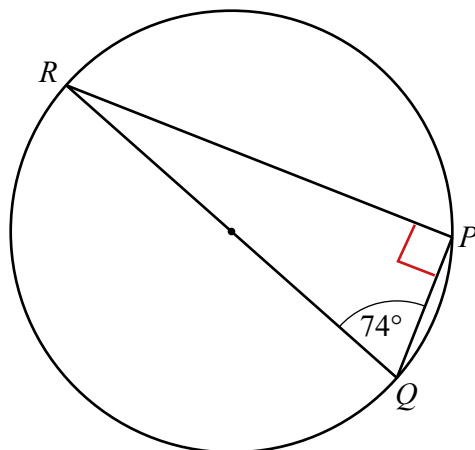
$$\dots\dots\dots 4.18 \times 10^{23} \dots\dots\dots [2]$$

Examiner comment

- Candidates generally found part (b) difficult. Successful candidates usually changed one of the original values so that it had the same power as the other. This usually led almost to the correct answer.
- Among those who were not awarded full marks, several were awarded 1 mark for correctly calculating the sum, but then did not express it in correct standard form. 41.8×10^{22} was a common incorrect answer. A mark was awarded for an answer containing the figures 418.
- Some candidates tried to process the number and the power separately, resulting in 7.6 from adding or 14.44 from multiplying. These were often combined with added powers, giving 10^{44} or 10^{45} .
- 7.6×10^{45} was a very common incorrect answer here.

Question 12

12



NOT TO
SCALE

P , Q and R lie on a circle.
 QR is a diameter.

Find angle PRQ .

Give geometrical reasons for your answer.

$\text{angle } RPQ = 90^\circ$ because the angle in a semicircle = 90°

therefore, $\text{angle } PRQ = 180^\circ - 90^\circ - 74^\circ = 16^\circ$

Angle $PRQ = \dots 16^\circ \dots$ because the angle in a semicircle is 90° and the sum of the angles in a triangle add up to 180° . [2]

Examiner comment

- Most candidates were able to correctly give the size of angle PRQ as 16° .
- Candidates were asked for geometrical reasons (not just a single reason), but many candidates offered just one of the two required statements, omitting either that the sum of angles in a triangle is 180° or that the angle in a semicircle is 90° .
- Where appropriate reasoning was attempted, it did not always include sufficient appropriate equivalent wording, such as omitting 'angle' or reference to a 'semicircle'.
- Some candidates missed the demand for geometrical reasoning and instead gave calculations, which are not an acceptable alternative to reasoning.

Question 13

- 13 (a) 100 students solve a puzzle.
The table shows information about the time taken by each student to solve the puzzle.

Time (t seconds)	$20 < t \leq 40$	$40 < t \leq 60$	$60 < t \leq 100$
Frequency	30	40	30

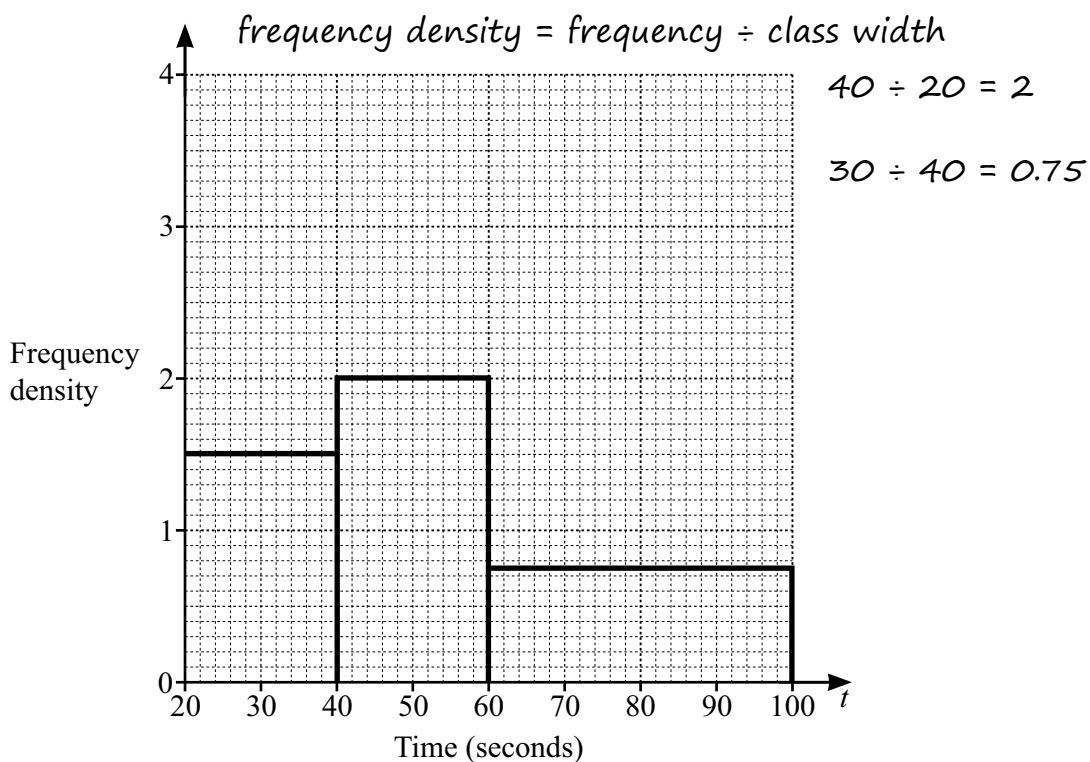
- (i) Work out an estimate of the mean.

midpoints are 30, 50 and 80

$$\begin{aligned} \text{mean} &= \frac{\sum fx}{\sum f} = \frac{30 \times 30 + 50 \times 40 + 80 \times 30}{30 + 40 + 30} \\ &= \frac{900 + 2000 + 2400}{100} \\ &= \frac{5300}{100} \\ &= 53 \end{aligned}$$

.....53.....s [4]

- (ii) Complete the histogram to show the information in the table.



[2]

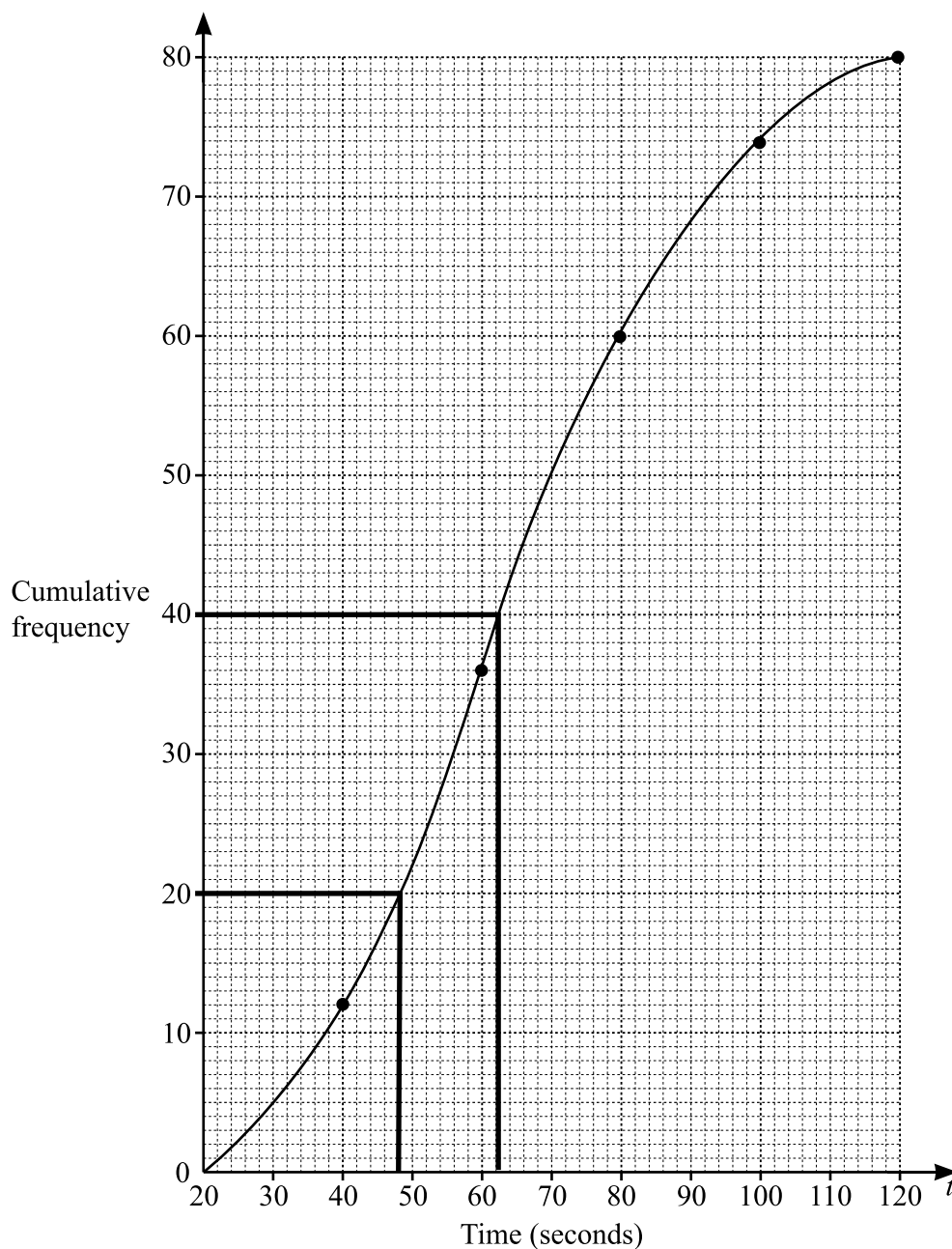
Examiner comment

Some candidates calculated the correct frequency density of 0.75 for the second bar, but were not accurate in drawing it and put the height on the graph at 0.7 or 0.8.

- (b) 80 adults solve the same puzzle as the students.
The cumulative frequency table shows information about the time taken by each adult to solve the puzzle.

Time (t seconds)	$t \leq 20$	$t \leq 40$	$t \leq 60$	$t \leq 80$	$t \leq 100$	$t \leq 120$
Cumulative frequency	0	12	36	60	74	80

- (i) On the grid, draw a cumulative frequency diagram.



(ii) Use your cumulative frequency diagram to find an estimate for

(a) the median

.....62..... s [1]

$$\frac{1}{2} \times 80 = 40$$

draw line across to curve at $cf = 40$ and then down to the time axis

(b) the lower quartile.

.....48..... s [1]

$$\frac{1}{4} \times 80 = 20$$

draw line across to curve at $cf = 20$ and then down to the time axis

Examiner comment

The most common error seen on **(b)(ii)(a)** and **(b)** was candidates incorrectly reading the scale. They read each small square on the horizontal axis as being equivalent to one second, not two seconds.

Question 14-15

14 Write $0.2\dot{5}$ as a fraction.

$$\text{Let } x = 0.255555\dots$$

$$10x = 2.55555\dots$$

$$100x = 25.55555\dots$$

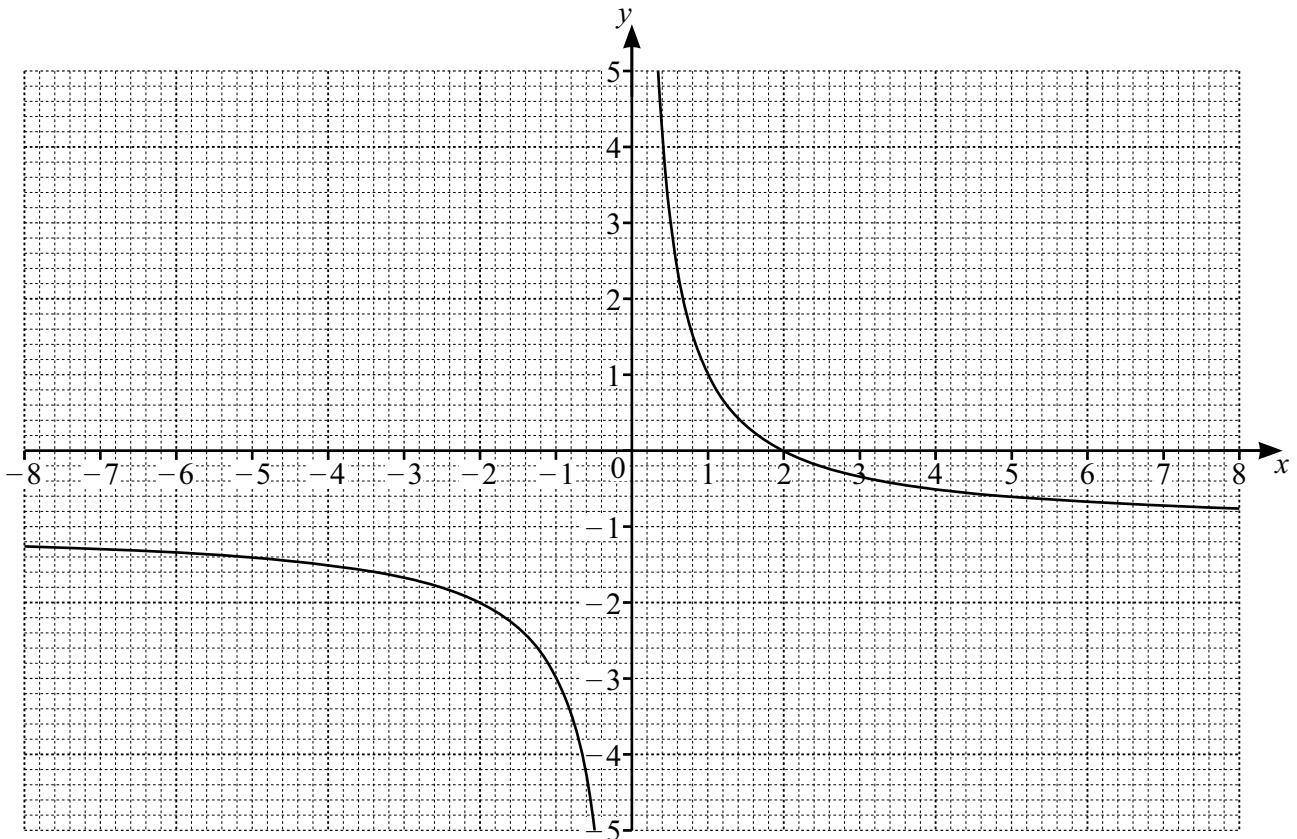
$$100x - 10x = 25.55555\dots - 2.55555\dots$$

$$90x = 23$$

$$x = \frac{23}{90}$$

[2]

15



The diagram shows the graph of $y = \frac{2}{x} - 1$.

(a) Write down the coordinates of the point where the graph crosses the x -axis.

(.....2..... ,0.....) [1]

(b) Write down the equation of each asymptote.

..... $x = 0$
 $y = -1$

[2]

Examiner comment

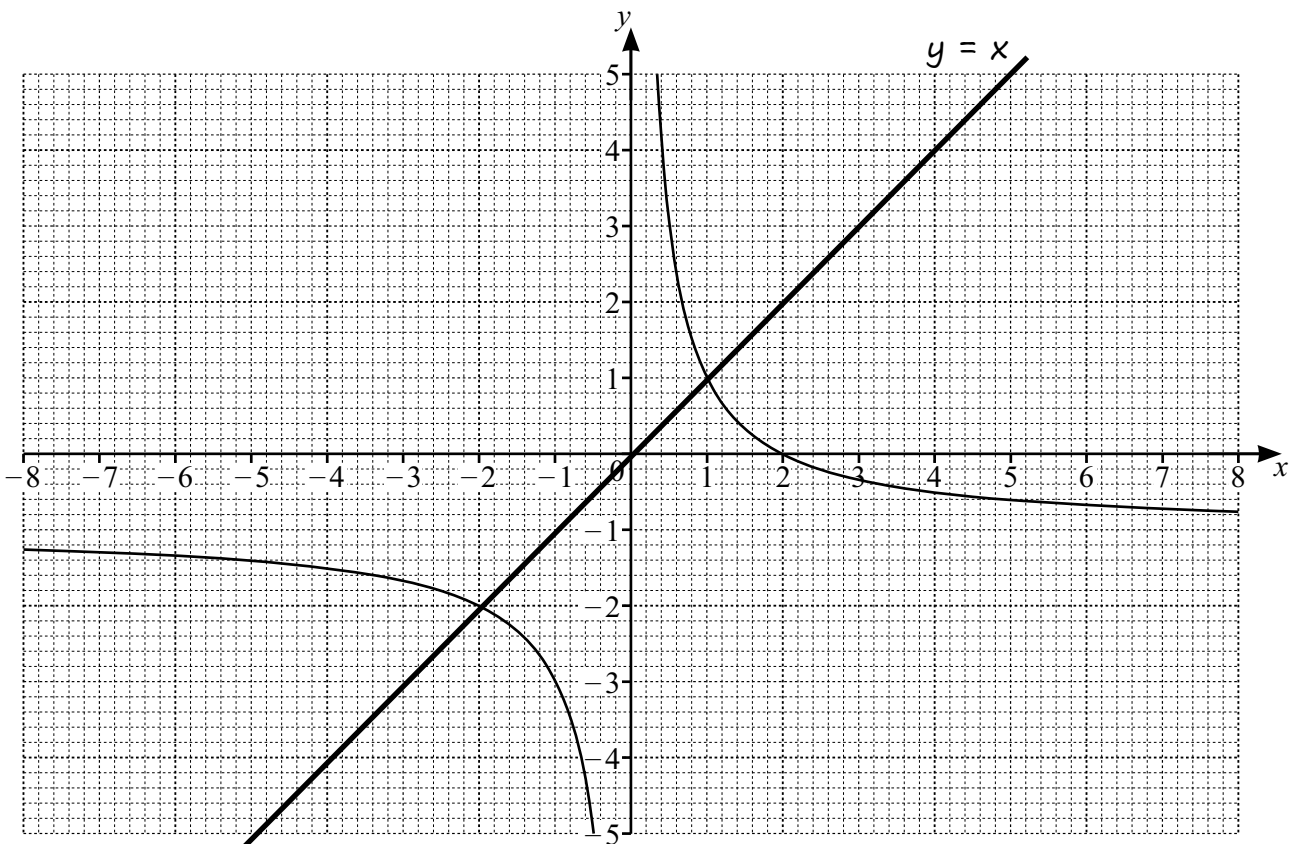
- Very few candidates got one asymptote correct and even fewer got two correct. Some candidates were not awarded any marks.
- Some candidates muddled the x and y and gave the reversed values as $x = -1$ and $y = 0$. There was a wide variety of answers, the most common being: $y = x$, $y = -x$, $\frac{2}{x}[-1]$, $y = \frac{2}{-x}[-1]$ and $y = \tan x$.
- Some candidates gave numerical values only rather than an equation.

(c) By drawing a suitable straight line on the grid, solve $\frac{2}{x} - x - 1 = 0$.

$$\frac{2}{x} - x - 1 = 0$$

$$\frac{2}{x} - 1 = x$$

$x = \dots\dots -2 \dots\dots$ or $x = \dots\dots 1 \dots\dots$ [3]

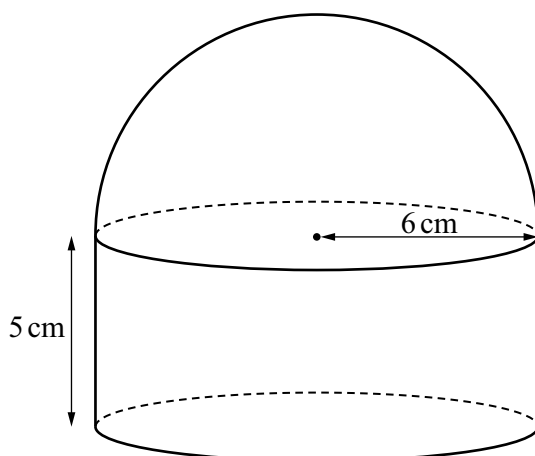


Examiner comment

- Many candidates were unsure which line needed to be drawn on the graph.
- Common incorrect lines were $y = -x$ or a line between $(-2, 0)$ and $(0, 2)$ or $(-2, -2)$ and $(2, 0)$, or other combinations of these coordinates. Others tried drawing tangents to both sections of the curve.
- Instead of using the graph as intended, many candidates attempted to solve the equation algebraically by forming a quadratic equation. While this approach led to correct answers in a few cases, most candidates struggled to apply it successfully.

Question 16

16



NOT TO SCALE

The diagram shows a solid made by joining a hemisphere to a cylinder. The radius of both the hemisphere and the cylinder is 6 cm. The height of the cylinder is 5 cm.

Find the **total** surface area of the solid.
Give your answer in terms of π .

hemisphere surface area

$$\begin{aligned} &= \frac{4\pi r^2}{2} \\ &= \frac{4 \times \pi \times 6^2}{2} \\ &= 72\pi \end{aligned}$$

cylinder surface area

$$\begin{aligned} &= \pi r^2 + 2\pi r h \\ &= \pi \times 6^2 + 2 \times \pi \times 6 \times 5 \\ &= 36\pi + 60\pi \\ &= 96\pi \end{aligned}$$

$$\text{total surface area} = 72\pi + 96\pi = 168\pi$$

$$\dots\dots\dots 168\pi \dots\dots\dots \text{cm}^2 \text{ [4]}$$

Examiner comment

- This question was a good discriminator. It was answered well by more able candidates, with fully correct answers regularly seen. However, partially correct methods were very common on this question too. Method marks were nearly always awarded for these incomplete methods.
- Common errors seen included calculating the surface area of the cylinder using the formula $2\pi r h + 2\pi r^2$ and forgetting that the top of the cylinder was joined to the bottom of the hemisphere.
- Some candidates used the formula for the surface area of a sphere and forgot to divide by 2.
- Some candidates calculated the surface area of half a sphere correctly using $\frac{4\pi r^2}{2}$ and the curved surface area of the cylinder correctly using $2\pi r h$, but forgot to add the circle on the base of the solid.

Question 17-18

17 Find the value of

(a) $125^{\frac{2}{3}}$

$$\dots\left(\sqrt[3]{125}\right)^2 = 5^2 = 25 \quad [2]$$

(b) $4^{-\frac{5}{2}}$

$$\frac{1}{4^{\frac{5}{2}}} = \frac{1}{(\sqrt{4})^5} = \frac{1}{2^5} = \frac{1}{32} \quad [2]$$

Examiner comment

- Candidates struggled to deal with the negative power appropriately in part (b).
- Many candidates were able to calculate $4^{\frac{5}{2}}$ as 32, but then wrote their final answer as either -32 or 32. Some candidates reached $\frac{1}{2^5}$, but then made numerical errors and gave a final answer of $\frac{1}{16}$ or $\frac{1}{64}$.
- A common approach was to reach 2^{-5} correctly, but then to give this as their answer or to make no correct step after this point.

18 (a) $\frac{9}{\sqrt{3}}$

Rationalise the denominator.

Give your answer in its simplest form.

$$\frac{9}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{9\sqrt{3}}{3}$$

$$\dots\dots\dots 3\sqrt{3} \quad [2]$$

(b) $(5 - \sqrt{2})(1 + 3\sqrt{2}) = c + k\sqrt{2}$

Find the value of c and the value of k .

$$\begin{aligned} & (5 - \sqrt{2})(1 + 3\sqrt{2}) \\ &= 5 + 15\sqrt{2} - \sqrt{2} - 6 \\ &= -1 + 14\sqrt{2} \end{aligned}$$

$$\begin{aligned} c &= \dots\dots\dots -1 \\ k &= \dots\dots\dots 14 \end{aligned} \quad [2]$$

Question 19

19 Write as a single fraction in its simplest form.

(a) $\frac{5a}{6} \times \frac{3b}{a}$

$$\frac{5a}{6} \times \frac{3b}{a} = \frac{15ab}{6a} = \frac{5b}{2}$$

$$\frac{5b}{2} \dots\dots\dots [2]$$

(b) $\frac{p}{2} + \frac{3t}{4}$

$$\frac{p}{2} + \frac{3t}{4} = \frac{4p + 6t}{8} = \frac{2(2p + 3t)}{8} = \frac{2p + 3t}{4}$$

$$\frac{2p + 3t}{4} \dots\dots\dots [2]$$

(c) $\frac{2}{x-2} - \frac{3}{x+1}$

$$= \frac{2(x + 1) - 3(x - 2)}{(x - 2)(x - 1)}$$

$$= \frac{2x + 2 - 3x + 6}{(x - 2)(x - 1)}$$

$$= \frac{-x + 8}{(x - 2)(x - 1)}$$

$$= \frac{-x + 8}{(x - 2)(x - 1)} \dots\dots\dots [3]$$

Question 20

20 $y \propto \frac{1}{\sqrt{x}}$

- (a) When $x = 9$, $y = 2$.

Find the value of y when $x = 36$.

$$y = \frac{k}{\sqrt{x}}$$

$$2 = \frac{k}{\sqrt{9}}$$

$$k = 2 \times 3 = 6$$

$$y = \frac{6}{\sqrt{x}}$$

$$y = \frac{6}{\sqrt{36}} = \frac{6}{6} = 1 \quad [3]$$

- (b) When x is increased by a factor of 4, the value of y changes by a factor of p .

Find the value of p .

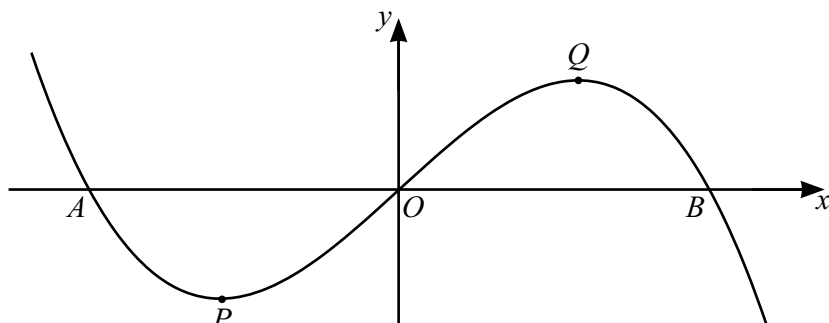
$$p = \frac{1}{2} \quad [1]$$

Examiner comment

Part (b) was very challenging for most candidates, and few were awarded the mark with many not attempting the question. It was clear that some candidates did not connect this question with the previous part. Some candidates did not apply the square root to 4 and gave $\frac{1}{4}$ as their answer.

Question 21

21



NOT TO SCALE

The diagram shows the graph of $y = 3x - x^3$.
 The graph crosses the x -axis at A , at O and at B .
 The turning points of the graph are at P and at Q .

- (a) Find the x -coordinate of A and the x -coordinate of B .
 Give your answers as exact values.

$$0 = 3x - x^3$$

$$0 = x(3 - x^2)$$

$$3 - x^2 = 0 \text{ or } x = 0$$

$$x^2 = 3$$

$$x = \pm\sqrt{3}$$

$$x\text{-coordinate of } A \dots\dots\dots -\sqrt{3}$$

$$x\text{-coordinate of } B \dots\dots\dots \sqrt{3}$$

[3]

Examiner comment

- Many candidates did not realise they needed to start by equating the equation of the curve to 0.
- More successful candidates were able to reach $\sqrt{3}$ for 2 marks, but only the most able candidates were able to give both x -coordinates, in the correct order. Some seemed to think, incorrectly, that their factorisation, or $x^2 = 3$, led to an x -coordinate of 3.
- Some candidates were not awarded the final mark due to assigning $\sqrt{3}$ and $-\sqrt{3}$ incorrectly to A and B .
- A few candidates gave pairs of coordinates rather than the x -coordinates asked for.
- Some candidates were awarded no marks in this part, because they gave the answers of -1 and 1 from equating the derivative of the curve to 0 (which was the required working for part (b)(ii)).

- (b) (i) Differentiate $3x - x^3$.

$$\dots\dots\dots 3 - 3x^2 \dots\dots\dots [2]$$

- (ii) Find the coordinates of P and Q .

$$3 - 3x^2 = 0$$

$$3x^2 = 3$$

$$x^2 = 1$$

$$x = \pm 1$$

$$\text{When } x = 1, y = 3 \times 1 - 1^3 = 3 - 1 = 2$$

$$\text{When } x = -1, y = 3 \times (-1) - (-1)^3 = -3 - (-1) = -2$$

$$P(\text{.....} -1 \text{.....}, \text{.....} -2 \text{.....})$$

$$Q(\text{.....} 1 \text{.....}, \text{.....} 2 \text{.....})$$

[4]

Question 22

22 (a) Write down the exact value of $\tan 60^\circ$.

..... $\sqrt{3}$ [1]

(b) Solve $2 \sin x - 1 = 0$ for $0^\circ \leq x \leq 360^\circ$.

$$2 \sin x = 1$$

$$\sin x = \frac{1}{2}$$

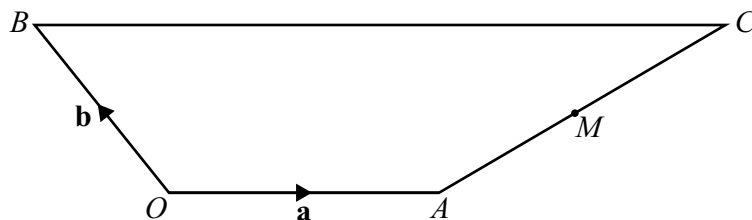
$x = \dots 30^\circ \dots$ or $x = \dots 150^\circ \dots$ [3]

Examiner comment

- Many candidates offered no response to this question. Of those who did give a response, most were awarded at least 1 mark for rearranging the equation to $\sin x = \frac{1}{2}$.
- A significant number of candidates who then were able to reach 30° struggled to identify the second value within the given range.
- A common error was giving 330° (from $360^\circ - 30^\circ$), indicating a misunderstanding of the symmetry properties of the sine function.

Question 23

23



NOT TO SCALE

In the diagram, OA is parallel to BC .

$$BC = 3OA$$

M is the midpoint of AC .

The position vector of A is \mathbf{a} and the position vector of B is \mathbf{b} .

Find the position vector of M .

Give your answer in terms of \mathbf{a} and \mathbf{b} , in its simplest form.

$$\overrightarrow{AC} = -\mathbf{a} + \mathbf{b} + 3\mathbf{a} = 2\mathbf{a} + \mathbf{b}$$

$$\overrightarrow{OM} = \overrightarrow{OA} + \frac{1}{2}\overrightarrow{AC}$$

$$\overrightarrow{OM} = \mathbf{a} + \frac{1}{2}(2\mathbf{a} + \mathbf{b})$$

$$\overrightarrow{OM} = \mathbf{a} + \mathbf{a} + \frac{1}{2}\mathbf{b}$$

$$\overrightarrow{OM} = 2\mathbf{a} + \frac{1}{2}\mathbf{b}$$

$$\overrightarrow{OM} = 2\mathbf{a} + \frac{1}{2}\mathbf{b} \quad [3]$$

Examiner comment

- The most successful candidates began by writing the route of the position vector of M as either $\overrightarrow{OA} + \overrightarrow{AM}$ or $\overrightarrow{OA} + \frac{1}{2}\overrightarrow{AC}$. They then found \overrightarrow{AC} as $\overrightarrow{AO} + \overrightarrow{OB} + \overrightarrow{BC}$ giving $-\mathbf{a} + \mathbf{b} + 3\mathbf{a}$, and then \overrightarrow{AM} as half of that result. Quite often these steps were undertaken correctly, but often the calculation stopped at \overrightarrow{AM} which was being offered as the position vector.
- Not all candidates understood what a position vector was, even though the principle was implied by the information given in the question.
- It was common to see incorrect labelling such as $M = \mathbf{a} + \frac{1}{2}\mathbf{b}$. Many candidates did not label any of their vector routes.

Question 24

24 The line $y = 7x + 3$ intersects the curve $y = x^2 + 5x - 12$ at the points A and B .

Find the coordinates of A and B .

$$7x + 3 = x^2 + 5x - 12$$

$$0 = x^2 - 2x - 15$$

$$0 = (x + 3)(x - 5)$$

$$x = -3 \text{ or } x = 5$$

$$\text{When } x = -3, y = 7 \times (-3) + 3 = -21 + 3 = -18$$

$$\text{When } x = 5, y = 7 \times 5 + 3 = 35 + 3 = 38$$

$$A (\dots -3 \dots , \dots -18 \dots)$$

$$B (\dots 5 \dots , \dots 38 \dots)$$

[5]

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