

Please check the examination details below before entering your candidate information

Candidate surname					Other names				
Centre Number					Candidate Number				
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Pearson Edexcel International GCSE

Wednesday 10 June 2026

Morning (Time: 2 hours 30 minutes)

Paper reference **4MB1/02**

Mathematics B

PAPER 2



You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
– *there may be more space than you need.*
- **Calculators may be used.**

Information

- The total mark for this paper is 100.
- The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.
- Without sufficient working, correct answers may be awarded no marks.

Turn over ►

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Answer ALL TWELVE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1** A shop sells 1 kg of apples for $\$a$ and 1 kg of potatoes for $\$p$

Meg buys 8 kg of apples and 5 kg of potatoes from the shop.

The total cost is $\$T$

- (a) Write down a formula for T in terms of a and p

(2)

Given that

$$4a + 5p = 35$$

$$2a + 15p = 70$$

- (b) find the total cost of 8 kg of apples and 5 kg of potatoes by first solving these simultaneous equations.

Show clear algebraic working.

(4)

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Question 1 continued

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(Total for Question 1 is 6 marks)



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2 $\mathcal{E}$ is the universal set and A , B and C are three sets such that

$$\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15\}$$

$$A = \{6, 7, 8, 9, 10, 11, 12\}$$

$$B = \{\text{odd numbers}\}$$

$$C = \{\text{factors of } 30\}$$

(a) List the members of the set $A \cap B$ (1)

(b) Find $n\left([A \cup B]'\right)$ (2)

The set D is such that $D \subset B$ and $D \subset C$

(c) Find the maximum value of $n(D)$ (2)

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Question 2 continued

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(Total for Question 2 is 5 marks)



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Question 3 continued

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(Total for Question 3 is 6 marks)



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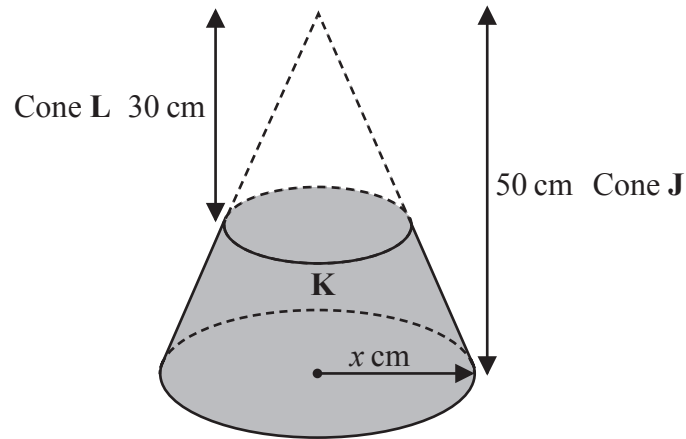
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Figure 1

A right circular cone **J** has height 50 cm and base radius x cm
 The shaded solid **K** is formed by removing cone **L** with height 30 cm
 from cone **J** as shown in Figure 1

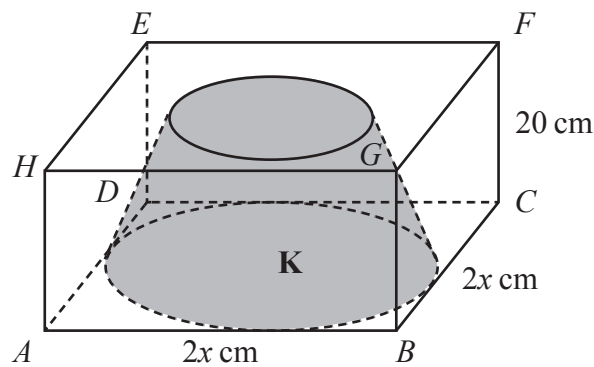
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Figure 2

Figure 2 shows solid **K** inside a hollow cuboid $ABCDEFGH$

$$AB = BC = 2x \text{ cm} \quad \text{and} \quad FC = 20 \text{ cm}$$

The base of the cuboid rests on horizontal ground.
 The base of **K** rests on the base of the cuboid.

Given that exactly 2000 cm^3 of water is needed to fill the space in the cuboid not
 occupied by **K**

calculate, to one decimal place, the value of x
 Show all your working.

(5)

$$\left[\text{Volume of a cone} = \frac{1}{3}\pi r^2 h \right]$$



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Question 4 continued

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Question 4 continued

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Question 4 continued

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(Total for Question 4 is 5 marks)



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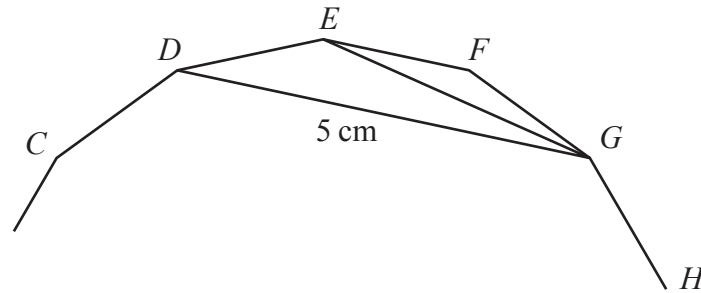


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Figure 3

Figure 3 shows part of a regular 15-sided polygon.

CD , DE , EF , FG and GH are five sides of the polygon.

- (a) Show that $\angle EFG = 156^\circ$ (2)

Given that $DG = 5\text{ cm}$

- (b) find the perimeter, in cm to one decimal place, of the 15-sided polygon.
Show all your working. (5)

$$\left[\begin{array}{l} \text{Sum of interior angles of polygon} \\ (2n - 4) \text{ right angles} \\ \text{Sine rule } \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C} \end{array} \right]$$

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Question 5 continued

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(Total for Question 5 is 7 marks)



- 6 A particle **P** is moving along a straight line.

At time t seconds, the displacement, x metres, of **P** from a fixed point O on the line is given by

$$x = -t^3 + 10t^2 \quad 0 \leq t \leq 10$$

At time t seconds the velocity of **P** is v m/s

Find the range of values for the acceleration of **P**, in m/s^2 , when $v > 9.25$
Show all your working.

(7)

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The solutions of $ax^2 + bx + c = 0$ where $a \neq 0$ are given by:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$



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Question 6 continued

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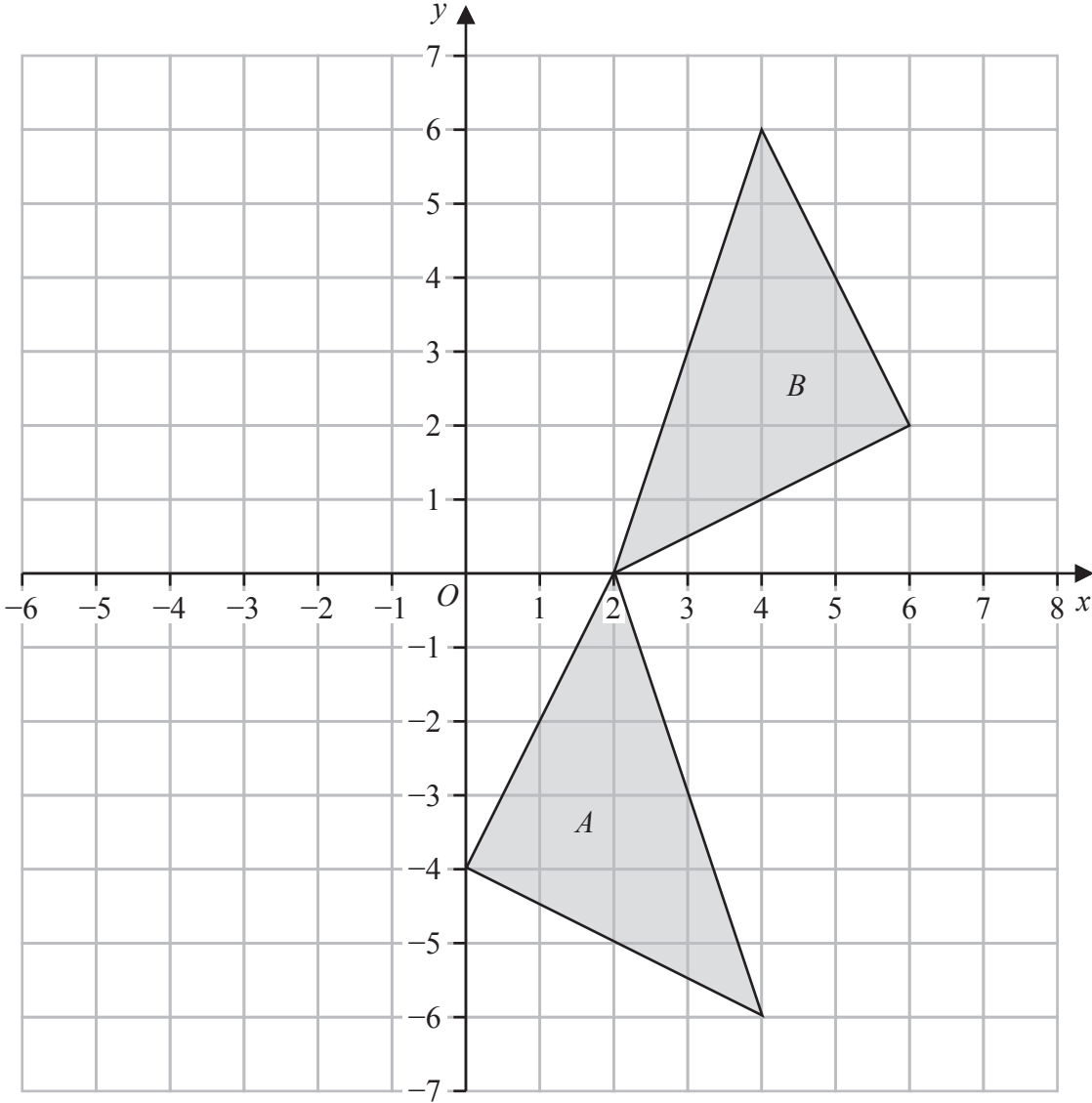
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Question 7 continued



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Question 7 continued

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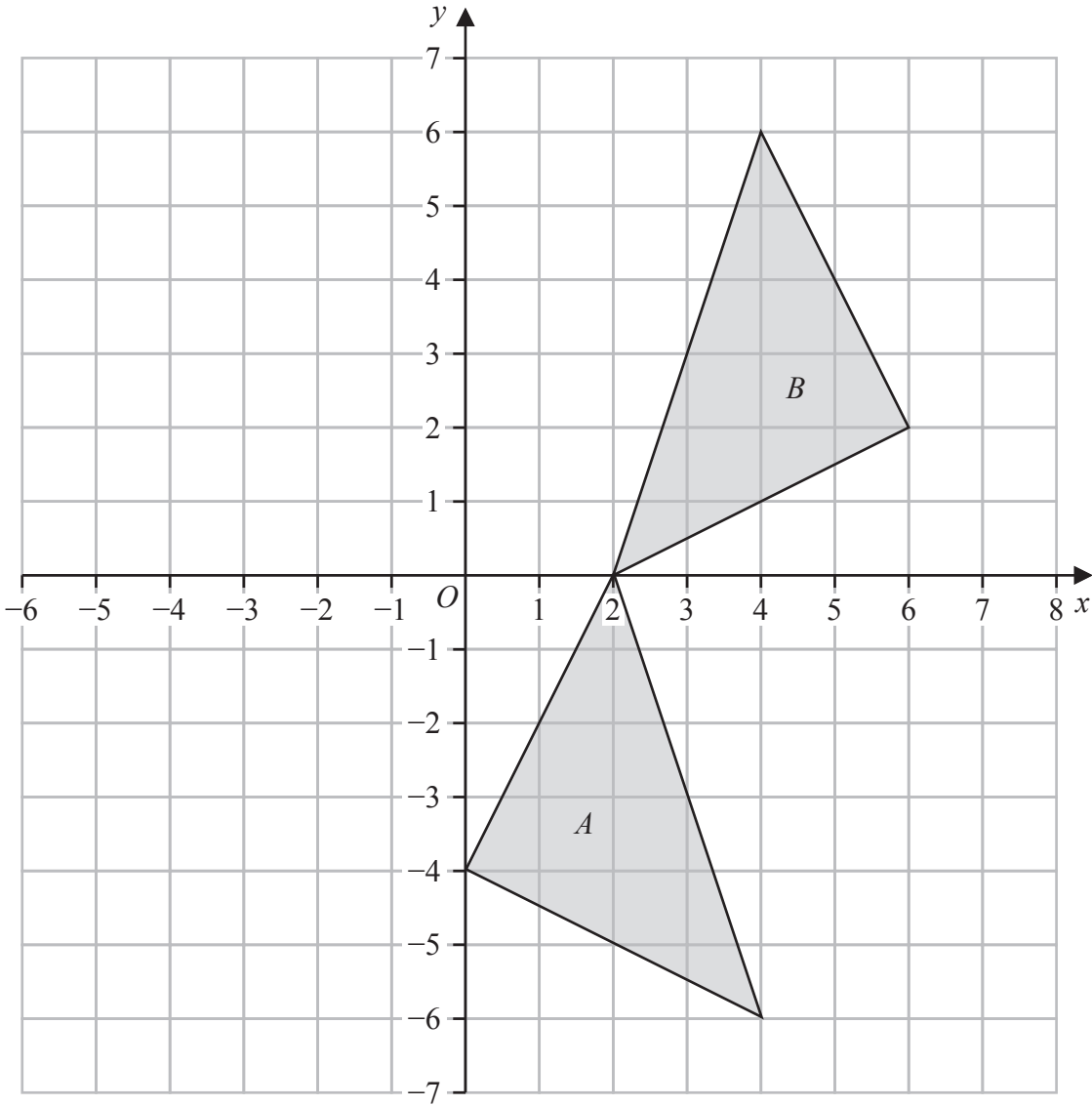
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Question 7 continued

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(Total for Question 7 is 9 marks)

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8 The table below shows information about the time, in minutes, it takes each of 50 teachers to travel to work.

Time (t minutes)	Frequency
$20 < t \leq 22$	4
$22 < t \leq 25$	6
$25 < t \leq 30$	23
$30 < t \leq 35$	12
$35 < t \leq 60$	5

(a) Calculate an estimate, in minutes, for the mean time it takes for these 50 teachers to travel to work.

(4)

Below is some information about how these 50 teachers travel to work.

- n teachers walk and travel by bus
- 21 teachers walk
- 34 teachers travel by bus
- 6 teachers do not walk and do not travel by bus

Rosa selects at random 2 teachers from those who walk.

(b) Find the probability that exactly one of these 2 teachers also travels by bus.

(5)

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Question 8 continued

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Question 8 continued

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Question 8 continued

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(Total for Question 8 is 9 marks)



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9 Each year Umera goes on a skiing holiday in France.

In 2023, the cost of her flights was \$250
In 2024, the cost of her flights is \$315

(a) Calculate the percentage increase in the cost of her flights from 2023 to 2024 (2)

The plane takes 2 hours 54 minutes to fly to France at an average speed of 640 km/h

(b) Calculate the total distance, in kilometres, the plane travels to France. (3)

The cost to hire skis is 680 euros.
The cost to buy a lift pass is 200 euros.

The exchange rate is \$1 = x euros

Umera pays \$612 to hire the skis.

(c) Using the same exchange rate, calculate in \$, the cost to buy a lift pass. (3)

Umera stays in a hotel while on holiday.
She makes 3 separate payments to cover the total cost of staying in the hotel.

The 1st payment is 560 euros.

The 2nd payment is $\frac{2}{5}$ of the total cost.

The 3rd payment is 28% of the total cost.

(d) Calculate, in euros, 28% of the total cost. (4)

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Question 9 continued

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Question 9 continued

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Question 9 continued

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(Total for Question 9 is 12 marks)



10 Part of the curve C with equation $y = -x^2 + x + 12$ is drawn on the grid opposite.

- (a) By drawing a suitable straight line on the grid, find estimates, to one decimal place, of the solutions to the equation

$$-x^2 + x + 12 = 3 - 0.5x \quad (3)$$

The equation of curve D is $y = \frac{1}{2}x^3 - \frac{9}{2}x + 6$

- (b) Complete the table of values for $y = \frac{1}{2}x^3 - \frac{9}{2}x + 6$

Give your values of y to one decimal place where appropriate.

x	-3.5	-3	-1.7	-1	0	1	1.7	3	3.5
y	0.3			10	6			6	11.7

(3)

- (c) On the grid, plot the points from your completed table and join them to form a smooth curve.

(3)

Curve C and curve D intersect twice in the range $-3.5 \leq x \leq 3.5$

- (d) (i) Write down the coordinates of these 2 points of intersection.

(1)

- (ii) Work out the equation of the line that passes through these 2 points of intersection.

Give your answer in the form $y = mx + c$

Show all your working.

(3)

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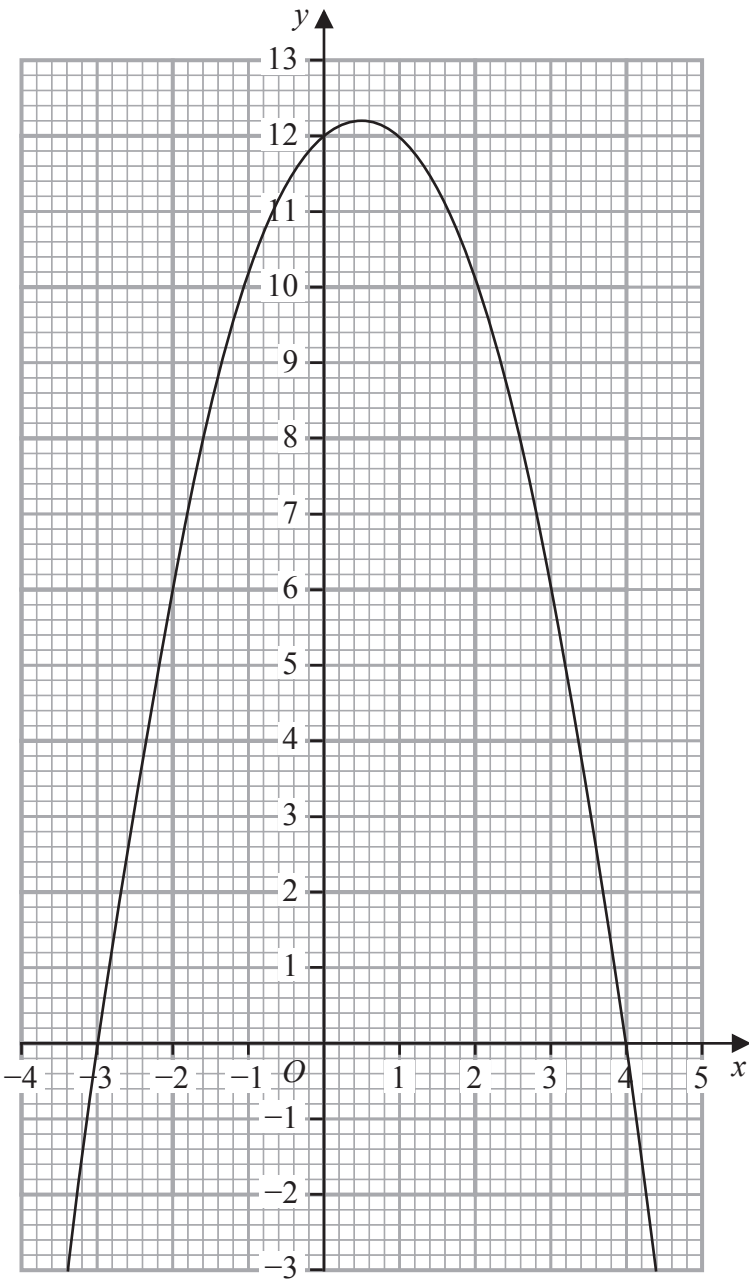
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Question 10 continued



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Question 10 continued

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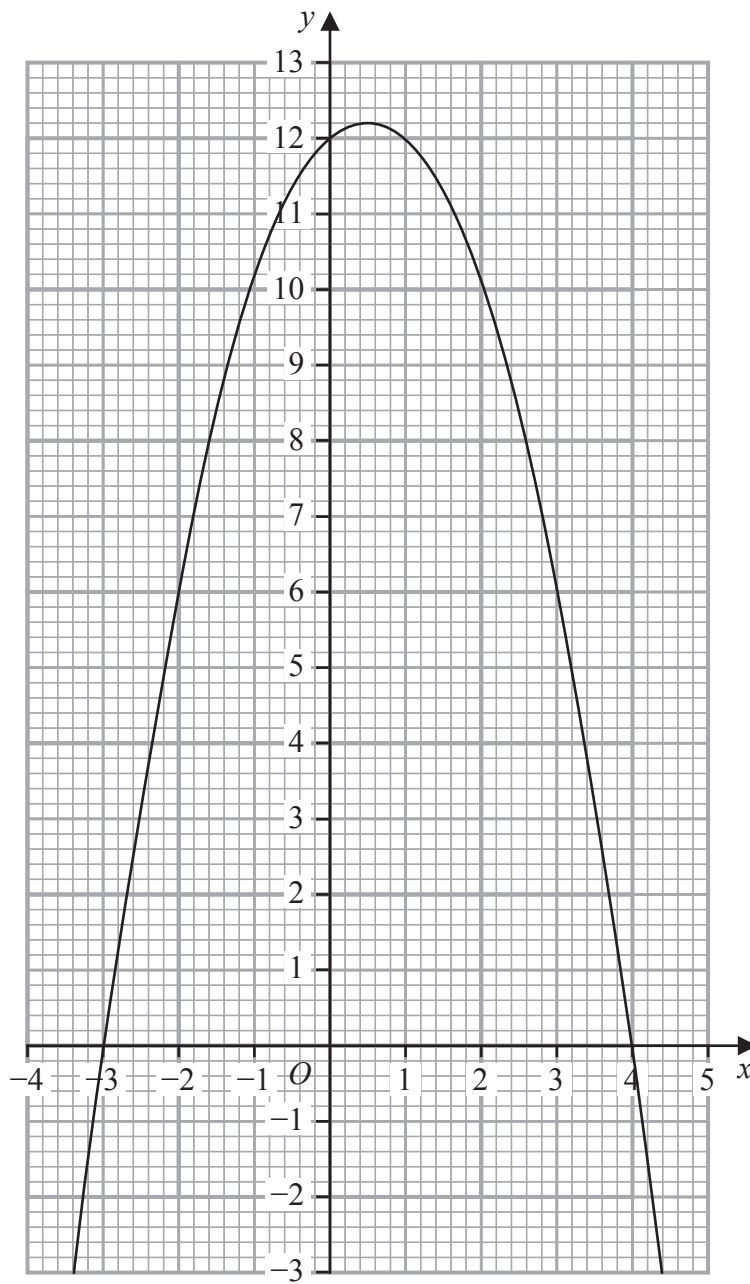
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Question 10 continued

Only use this grid if you need to redraw your graph.



(Total for Question 10 is 13 marks)



11 The three functions f , g and h are defined as

$$f : x \mapsto \frac{5x + 2}{2x + 3}$$

$$g : x \mapsto x^2 - 2 \quad x > 0$$

$$h : x \mapsto 10x^3 + 29x^2 - 5x - 6$$

- (a) State the value of x that must be excluded from any domain of f (1)
- (b) Write down the range of g (1)
- (c) Find $g(-3)$ (1)
- (d) Find $hf(4)$ (2)
- (e) (i) Use the factor theorem to show that $(5x + 2)$ is a factor of $h(x)$ (2)
- (ii) Hence solve the equation $h(x) = 0$
Show clear algebraic working. (4)

The solutions of $ax^2 + bx + c = 0$ where
 $a \neq 0$ are given by:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$



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Question 11 continued

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Question 11 continued

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Question 11 continued

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(Total for Question 11 is 11 marks)



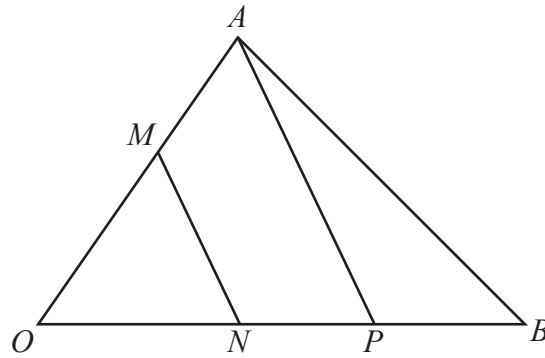


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accurately drawn

Figure 4

Figure 4 shows triangle OAB

Given that $\vec{OA} = 3\mathbf{a}$ and $\vec{OB} = 3\mathbf{b}$

(a) find an expression for $\vec{AB}$ in terms of $\mathbf{a}$ and $\mathbf{b}$

(1)

The point M lies on OA such that $OM : MA = 2 : 1$

The point N lies on OB such that $\vec{ON} = \frac{2}{5} \vec{OB}$

The point P is such that $ONPB$ is a straight line and AP is parallel to MN

The point Q is such that $\vec{OQ} = -12\mathbf{a} + 9\mathbf{b}$

(b) Show that A , P and Q are collinear.

(4)

The point R is such that NMR and BAR are straight lines.

(c) Find an expression for $\vec{OR}$ in terms of $\mathbf{a}$ and $\mathbf{b}$

Give your answer in its simplest form.

Show all your working.

(5)

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Question 12 continued

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Question 12 continued

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(Total for Question 12 is 10 marks)

TOTAL FOR PAPER IS 100 MARKS



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