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4MA1 Nov 2026 Paper 2 Best Guess Paper

Higher · Standard · Worked Solutions

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This independently compiled practice paper is designed for students preparing for Pearson Edexcel International GCSE Mathematics A (4MA1), Higher Tier, Paper 2H. It includes accessible and challenging Higher Tier questions for standard exam practice. A calculator may be used.

It is not an official Pearson Edexcel examination paper and is not endorsed by Pearson. There is no guarantee that these questions or topics will appear in the real examination. Claims of a perfectly predicted paper should not be relied on.

Attempt all questions, use the matching mark scheme and worked solutions, and show every stage of your working. The best preparation is to revise the full specification, using the free worksheets and clips at www.mygrade9mathstutor.com.

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Worked Solutions

23 questions · 100 marks

Calculator allowed · 2 hours

Calculator allowed · 23 questions · 100 marks · Suggested time: 2 hours.
Answer every question and show all stages of your working.

Paper 2H · Standard Higher · Worked Solutions

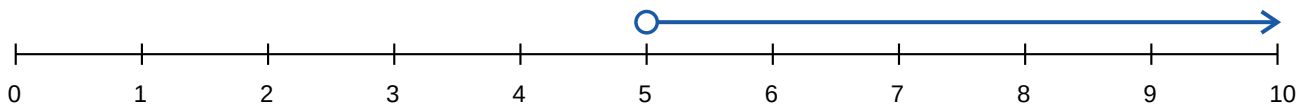
International GCSE Mathematics A 4MA1 · November 2026 · Calculator allowed · 23 questions · 100 marks

Question 1 · Linear Inequalities · 3 marks

(a) Add 5 to both sides: $3x > 15$. Divide by 3: $x > 5$.

(b) Use an open circle at 5 because 5 is excluded. Draw the ray to the right for values greater than 5.

Answer: (a) $x > 5$; (b) open circle at 5, arrow right.



Question 2 · Scale Models · 3 marks

Convert the real length: $78 \text{ m} = 7800 \text{ cm}$.

A scale of 1 : 200 means model length = real length $\div$ 200.

$7800 \div 200 = 39 \text{ cm}$.

Answer: 39 cm

Question 3 · Speed Unit Conversion · 3 marks

$90 \text{ km} = 90\,000 \text{ m}$, and $1 \text{ hour} = 3600 \text{ seconds}$.

Speed = $90\,000 \div 3600 = 25 \text{ m/s}$. Equivalently, $90 \div 3.6 = 25$.

Answer: 25 m/s

Question 4 · Reverse Percentages · 2 marks

After a 20% reduction, the sale price is 80% of the original.

Normal price = $344 \div 0.8 = \text{£}430$. Check: $430 \times 0.8 = 344$.

Answer: £430

Question 5 · Forming an Equation and Rectangle Area · 4 marks

Opposite sides of the rectangle are equal: $5x - 1 = 3x + 5$.

$2x = 6$, so $x = 3$. Height = $5(3) - 1 = 14 \text{ cm}$.

Area = width $\times$ height = $24 \times 14 = 336 \text{ cm}^2$.

Answer: 336 cm^2

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Question 6 · Ratio, Fractions and Percentages · 5 marks

There are $7 + 3 + 2 = 12$ ratio parts. Each part is $720 \div 12 = 60$.

Tulips: $7 \times 60 = 420$; crocus bulbs: $3 \times 60 = 180$; daffodils: $2 \times 60 = 120$.

Yellow tulips: $0.4 \times 420 = 168$. Yellow crocus flowers: $(\frac{2}{3}) \times 180 = 120$.

Yellow daffodils: $(\frac{3}{4}) \times 120 = 90$.

Total yellow flowers = $168 + 120 + 90 = 378$.

Answer: 378 yellow flowers

Question 7 · Venn Diagrams and Probability · 5 marks

(a)(i) Include the overlaps within Q: $Q = \{11, 13, 14, 15, 16\}$.

(a)(ii) $P \cup R$ includes anything in either P or R: $\{10, 12, 14, 15, 16, 17, 19\}$. Exclude 11 and 13 because they are in Q only, and exclude 18 because it is outside both circles.

(b) Yes. P and R have no overlap, so $P \cap R = \emptyset$.

(c) Q' contains $\{10, 12, 17, 18, 19\}$. Five of the ten numbers are outside Q, so the probability is $5/10 = 1/2$.

Answer: (a)(i) $\{11, 13, 14, 15, 16\}$; (a)(ii) $\{10, 12, 14, 15, 16, 17, 19\}$; (b) yes, disjoint; (c) $1/2$.

Question 8 · Pythagoras and Trigonometry · 4 marks

In the upper triangle, shared side² = $15^2 - 9^2 = 144$.

The shared horizontal side is 12 cm.

In the lower triangle, $\sin 40^\circ = \text{opposite/hypotenuse} = 12/x$.

$x = 12/\sin 40^\circ = 18.668\dots$ cm, so $x = 18.7$ cm to one decimal place.

Answer: 18.7 cm

Question 9 · Algebraic Manipulation · 7 marks

(a) $(2p^3)^5 = 2^5 \times p^{3 \times 5} = 32p^{15}$.

(b) $2p(4p - 3) - p(p - 4) = 8p^2 - 6p - p^2 + 4p = 7p^2 - 2p$.

(c) Multiply $(3x - 2)/4 = 5 - x$ by 4: $3x - 2 = 20 - 4x$.

Collect terms: $7x = 22$, so $x = 22/7$.

Answer: (a) $32p^{15}$; (b) $7p^2 - 2p$; (c) $x = 22/7$.

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Question 10 · Probability Trees · 5 marks

(a) First branches: $P(\text{rain}) = 0.35$, $P(\text{no rain}) = 0.65$.

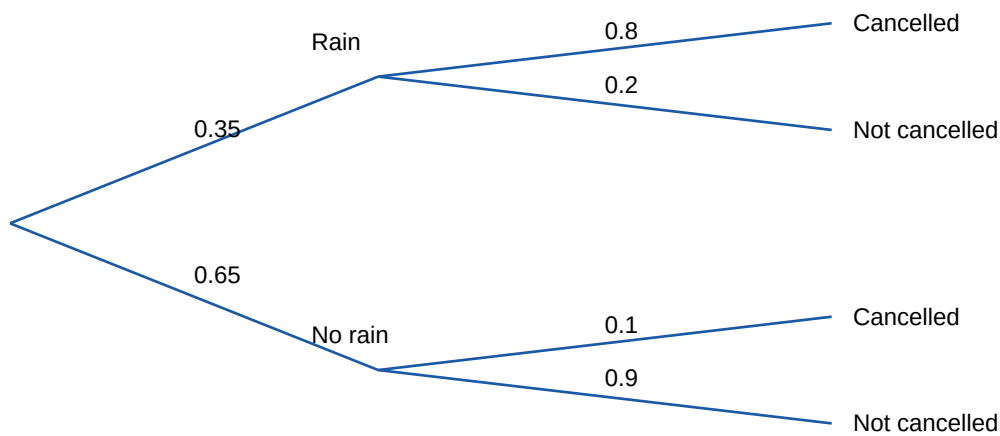
After rain: $P(\text{cancelled}) = 0.8$ and $P(\text{not cancelled}) = 0.2$.

After no rain: $P(\text{cancelled}) = 0.1$ and $P(\text{not cancelled}) = 0.9$.

(b) Multiply along paths and add mutually exclusive outcomes:

$$P(\text{cancelled}) = 0.35 \times 0.8 + 0.65 \times 0.1 = 0.28 + 0.065 = 0.345.$$

Answer: (a) tree as shown; (b) 0.345.



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Question 11 · Rotation and Negative Enlargement · 5 marks

The original vertices of A are (3, 1), (5, 1) and (3, 2).

(a) Rotate 90° anticlockwise about (0, 0): $(x, y) \rightarrow (-y, x)$.

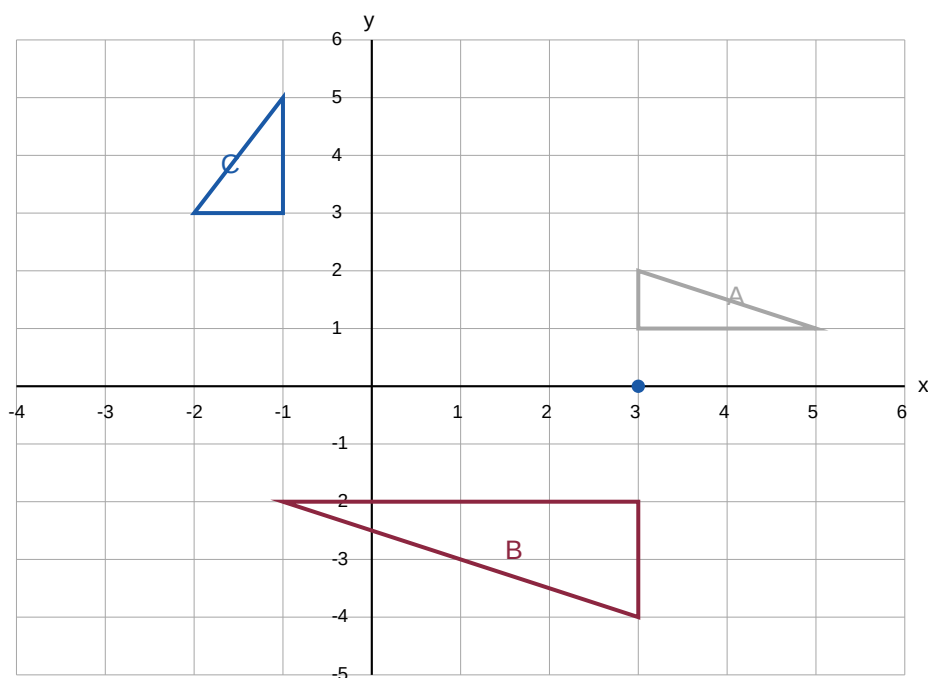
Triangle C has vertices $(-1, 3)$, $(-1, 5)$, $(-2, 3)$. Join them.

(b) For centre (3, 0), multiply each displacement from the centre by -2 .

$(3, 1) \rightarrow (3, -2)$; $(5, 1) \rightarrow (-1, -2)$; $(3, 2) \rightarrow (3, -4)$.

Join the three image vertices to form triangle B.

Answer: C: $(-1, 3)$, $(-1, 5)$, $(-2, 3)$. B: $(3, -2)$, $(-1, -2)$, $(3, -4)$.



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Question 12 · Graphical Inequalities · 5 marks

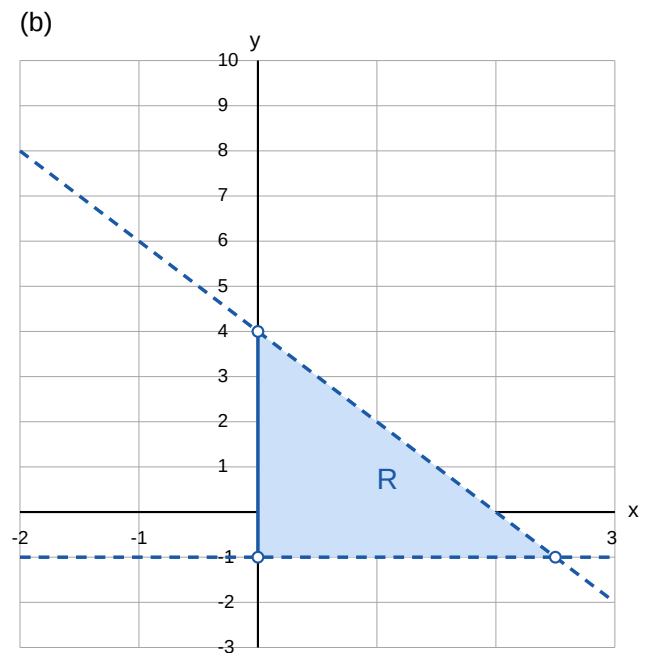
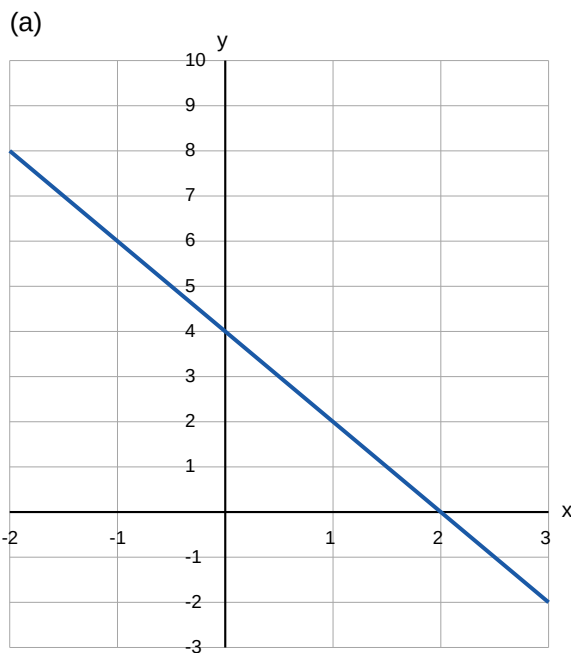
(a) Substitute into $y = -2x + 4$ to obtain $(-2, 8)$, $(0, 4)$, $(2, 0)$ and $(3, -2)$. Join with a straight line for $-2 \leq x \leq 3$.

(b) $x \geq 0$ means on or to the right of the y -axis. $y > -1$ means above the horizontal line $y = -1$.

$y < -2x + 4$ means below the sloping line. Shade the common region and label it R.

Its boundary corners are $(0, -1)$, $(0, 4)$, $(2.5, -1)$. Exclude $y = -1$ and the sloping boundary; include the vertical boundary between its endpoints.

Answer: (a) $y = -2x + 4$; (b) shaded triangular region R as shown.



Question 13 · Semicircular Patio and Cost · 5 marks

The radii are half the diameters: 5 m and 3 m.

Patio area = $(1/2)\pi \times 5^2 - (1/2)\pi \times 3^2 = 8\pi \text{ m}^2$.

Cost = $24 \times 8\pi = 192\pi = \text{£}603.185\dots \approx \text{£}603.19$.

Yes: the cost is less than Jo's £1200 budget.

Answer: Yes; cost £603.19 approximately

Question 14 · Index Laws · 5 marks

(a) A non-zero number to the power 0 equals 1, so $k = 0$.

(b) $27 = 3^3$. Therefore $27/3^8 = 3^{3-8} = 3^{-5}$, so $m = -5$.

(c) $(7^{-4})^3 \times 7^5 = 7^{-12} \times 7^5 = 7^{-7}$, so $p = -7$.

Answer: (a) $k = 0$; (b) $m = -5$; (c) $p = -7$.

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Question 15 · Histograms and Probability · 4 marks

A histogram bar's area represents frequency.

Whole classes: $1 \times 10 = 10$; $2 \times 20 = 40$; $5 \times 15 = 75$; $4 \times 15 = 60$. Total = 185.

Between 25 g and 50 g: $(30 - 25) \times 2 + (45 - 30) \times 5 + (50 - 45) \times 4 = 10 + 75 + 20 = 105$.

Estimated probability = $105/185 = 21/37 \approx 0.568$.

Answer: $105/185 = 21/37$

Question 16 · Similar Solids · 4 marks

Area scale factor from A to B = $80\pi/(45\pi) = 16/9$.

Linear scale factor = $\sqrt{16/9} = 4/3$.

Volume scale factor = $(4/3)^3 = 64/27$.

Volume of B = $810 \times 64/27 = 1920 \text{ cm}^3$.

Answer: 1920 cm^3

Question 17 · Bearings · 4 marks

A to B has bearing 045° , so B to A has bearing 225° . B to C has bearing 135° .

The interior angle at B is $225^\circ - 135^\circ = 90^\circ$.

$\tan(\text{angle BAC}) = 20/15$, giving angle BAC = $53.130\dots^\circ$.

The bearing of C from A is $45^\circ + 53.130\dots^\circ = 98.130\dots^\circ$.

Write a three-figure bearing: 098.1° to one decimal place.

Answer: 098.1°

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Question 18 · Cubic Graphs and Roots · 6 marks

(a) For $y = x^3 - 3x + 1$: at $x = -2$, $y = -8 + 6 + 1 = -1$; at $x = 0$, $y = 1$; at $x = 2$, $y = 8 - 6 + 1 = 3$.

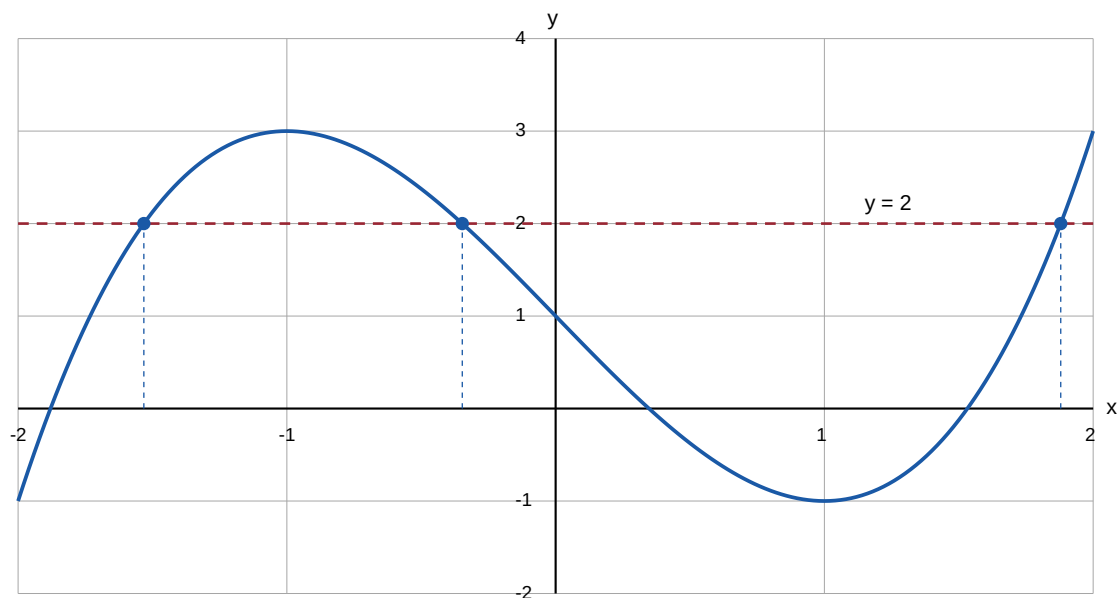
Completed pairs: $(-2, -1)$, $(-1, 3)$, $(-0.5, 2.4)$, $(0, 1)$, $(1, -1)$, $(1.5, -0.1)$, $(2, 3)$. The displayed non-integer values are rounded as in the question.

(b) Plot these points and draw a smooth cubic curve, not straight segments.

(c) Add 2 to $x^3 - 3x - 1 = 0$: $x^3 - 3x + 1 = 2$.

Draw $y = 2$ and read the three intersection x-values: approximately -1.53 , -0.35 and 1.88 . Small differences due to reading the graph are acceptable.

Answer: (a) $-1, 1, 3$; (b) cubic shown; (c) $x \approx -1.53, -0.35, 1.88$.



Question 19 · Completing the Square · 4 marks

(a) $2x^2 - 12x + 23 = 2(x^2 - 6x) + 23$.

Since $x^2 - 6x = (x - 3)^2 - 9$, the expression becomes $2(x - 3)^2 - 18 + 23 = 2(x - 3)^2 + 5$.

(b) The squared term is smallest at $x = 3$. Then $y = 5$, so the minimum is $(3, 5)$.

Answer: (a) $2(x - 3)^2 + 5$; (b) $(3, 5)$.

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Question 20 · Proof with Consecutive Odd Integers · 4 marks

Let the two consecutive odd integers be $2n - 1$ and $2n + 1$, where n is any integer.

Their squared sum is $(2n - 1)^2 + (2n + 1)^2$.

Expand: $(4n^2 - 4n + 1) + (4n^2 + 4n + 1) = 8n^2 + 2$.

Because n^2 is an integer, $8n^2$ is a multiple of 8. Thus the sum is always 2 more than a multiple of 8.

Answer: Always 2 more than a multiple of 8

Question 21 · Intersecting Secants · 4 marks

From P, external $\times$ whole secant length is equal on both lines:

$$PB \times PA = PD \times PC \Rightarrow 5(5 + x) = x(x + 7).$$

$$25 + 5x = x^2 + 7x \Rightarrow x^2 + 2x - 25 = 0.$$

The quadratic formula gives $x = \frac{-2 \pm \sqrt{104}}{2} = -1 \pm \sqrt{26}$.

Discard the negative root because x is a length. $x = \sqrt{26} - 1 = 4.099\dots$ cm.

AB = 4.10 cm to three significant figures.

Answer: 4.10 cm

Question 22 · Equation of a Circle Tangent · 4 marks

The circle is centred at the origin. Radius OA has gradient $-7/4$.

The tangent is perpendicular to the radius, so its gradient is $4/7$.

Through $(4, -7)$: $y + 7 = (4/7)(x - 4)$.

Multiply by 7: $7y + 49 = 4x - 16$. Rearrange to $4x - 7y - 65 = 0$.

Answer: $4x - 7y - 65 = 0$

Question 23 · Calculus and Total Distance · 5 marks

Differentiate $s = t^3 - 12t^2 + 45t$: $v = 3t^2 - 24t + 45$.

Set $v = 0$: $3(t - 3)(t - 5) = 0$, giving changes of direction at $t = 3$ and $t = 5$.

$s(0) = 0$; $s(3) = 54$ m; $s(5) = 50$ m; $s(7) = 70$ m.

Distances: 0–3 s: $|54 - 0| = 54$ m; 3–5 s: $|50 - 54| = 4$ m; 5–7 s: $|70 - 50| = 20$ m.

Total distance = $54 + 4 + 20 = 78$ m. The displacement at 7 s is only 70 m.

Answer: 78 m