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4MA1 Nov 2026 Higher Paper 1 Target 5 Mark scheme

----- Disclaimer -----

This Mark Scheme has been designed using a careful analysis of historical exam trends to identify topics highly likely to appear in the 1H paper. It is an excellent revision tool specifically structured for students targeting a Grade 5. To support this, the paper focuses heavily on essential crossover topics, while still retaining the more challenging questions at the end to provide a true Higher Tier mock exam experience.

Despite claims frequently seen on social media, it is strictly impossible to perfectly "predict" an exam paper—such statements are typically sales tactics. While the topics covered here are highly relevant, there is no guarantee they will appear in the actual exam. The most effective preparation strategy will always be a comprehensive revision of the entire mathematics specification.

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The Playlist for Solutions can be found



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Pearson 4MA1 Paper 1H (Grade 5 Best Guess Nov 2026)
Mark Scheme

GENERAL MARKING GUIDANCE

- * All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- * Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- * All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if the candidate's response answers the question perfectly.
- * Where working is shown, correct answers with no working may get full marks, but incorrect answers with no working usually receive zero marks.

Question 1 (Total 2 marks)

Mark	Answer / Working / Guidance
M1	Converts mixed numbers to improper fractions: $16/5$ and $5/3$ (or correct common denominator 15: $48/15$ and $25/15$).
M1	Subtracts correctly: $48/15 - 25/15 = 23/15$.
A1	Converts to mixed number correctly: $1 \frac{8}{15}$ (with full working shown to justify 'show that').

Question 2 (Total 2 marks)

Mark	Answer / Working / Guidance
M1	Repeated division or factor tree starting with 5040 (e.g., $5040 = 2 \times 2520 = 2^4 \times 3^2 \times 5 \times 7$ etc.).
A1	Expresses in correct index form: $2^4 \times 3^2 \times 5 \times 7$.

Question 3 (Total 2 marks)

Mark	Answer / Working / Guidance
M1	Identifies common difference of 4, giving $4n$.
A1	Fully correct expression: $4n + 3$.

Question 4 (Total 2 marks)

Mark	Answer / Working / Guidance
M1	Divides coefficients and subtracts powers: $(3.6 \div 4.5) \times 10^{22-(-6)} = 0.8 \times 10^{28}$.
A1	Converts to correct standard form: 8×10^{27} .

Question 5 (Total 7 marks)

Mark	Answer / Working / Guidance
(a) Expand & simplify	M1 for multiplying out brackets $(x^2 + 7x - 4x - 28)$. A1 for $x^2 + 3x - 28$.
(b) Factorise fully	M1 for identifying highest common factor $6cw^2$. A1 for $6cw^2(3c^4 + 5w)$.
(c) Solve equation	M1 for expanding fraction: $7x - 2 = 4(3x + 1) \Rightarrow 7x - 2 = 12x + 4$. M1 for collecting terms: $-5x = 6$. A1 for $x = -1.2$ (or $-6/5$).

Question 6 (Total 3 marks)

Mark	Answer / Working / Guidance
M1	Equates coefficients (e.g., multiply eq(1) by 3 and eq(2) by 2: $9x + 6y = 48$ and $8x - 6y = 54$).
M1	Adds equations to eliminate y: $17x = 102 \Rightarrow x = 6$, then substitutes to find y (-1).
A1	Correct solutions: $x = 6$, $y = -1$.

Question 7 (Total 5 marks)

Mark	Answer / Working / Guidance
(a) Simplify $a^6 \times a^{10}$	A1 for a^{16} .
(b) Simplify $c^{30} \div c^{12}$	A1 for c^{18} .
(c)(i) Factorise $x^2 - 10x + 24$	A1 for $(x - 6)(x - 4)$.
(c)(ii) Hence solve	A1 for $x = 6, x = 4$.

Question 8 (Total 2 marks)

Mark	Answer / Working / Guidance
(a) Upper bound	A1 for 1.65.
(b) Lower bound	A1 for 1.55.

Question 9 (Total 3 marks)

Mark	Answer / Working / Guidance
M1	Finds midpoints (2.5, 7.5, 12.5, 17.5, 22.5) and multiplies by frequencies (15, 105, 225, 140, 90).
M1	Sums products: $15 + 105 + 225 + 140 + 90 = 575$ and divides by 50.
A1	Correct estimate: 11.5 kg.

Question 10 (Total 5 marks)

Mark	Answer / Working / Guidance
M1	Converts £600 to Euros: $600 \times 1.15 = \text{€}690$.
M1	Calculates savings portion (2 parts out of 5): $\text{€}690 \times (2/5) = \text{€}276$.
M1	Converts back using new rate: $\text{€}276 \div 1.18 = \text{£}233.898\dots$
A1	Rounds correctly to nearest penny: $\text{£}233.90$.

Question 11 (Total 2 marks)

Mark	Answer / Working / Guidance
M1	Adds 180° to 075° (since $< 180^\circ$).
A1	Correct bearing: 255° .

Question 12 (Total 3 marks)

Mark	Answer / Working / Guidance
M1	Uses cylinder volume formula $V = \pi r^2 h$: $\pi \times 4.5^2 \times 10$.
M1	Evaluates numerically: $202.5\pi = 636.172\dots$
A1	Correct to 3 sig figs: 636 cm^3 .

Question 13 (Total 3 marks)

Mark	Answer / Working / Guidance
M1	Calculates gradient $m = (10 - 4) / (3 - 1) = 6 / 2 = 3$.
M1	Substitutes point into $y = 3x + c$ to find c ($4 = 3(1) + c \Rightarrow c = 1$).
A1	Correct equation: $y = 3x + 1$.

Question 14 (Total 3 marks)

Mark	Answer / Working / Guidance
M1	Distance in metres = 135,000 m; Time in seconds = $1.5 \times 3600 = 5400$ s.
M1	Speed = $135,000 \div 5400$.
A1	Correct speed: 25 m/s.

Question 15 (Total 3 marks)

Mark	Answer / Working / Guidance
M1	States interior + exterior = 180 or equates: $(10x + 18) + (2x - 18) = 180 \Rightarrow 12x = 180 \Rightarrow x = 15$.
M1	Finds exterior angle: $2(15) - 18 = 12^\circ$ (or interior angle = 168° then $360/12$).
A1	Correct value of n: 30.

Question 16 (Total 3 marks)

Mark	Answer / Working / Guidance
M1	Finds $P(\text{Red, Red}) = (5/9) \times (5/9) = 25/81$ and $P(\text{Blue, Blue}) = (4/9) \times (4/9) = 16/81$.
M1	Adds probabilities together: $25/81 + 16/81$.
A1	Correct fraction: $41/81$.

Question 17 (Total 3 marks)

Mark	Answer / Working / Guidance
M1	Recognises right-angled triangle drop: vertical height = 15 cm, horizontal base extension = $24.3 - 18 = 6.3$ cm.
M1	Uses $\tan(\text{ECD}) = 6.3 / 15 \Rightarrow \text{angle} = 22.78^\circ$, then adds 90° .
A1	Correct angle: 112.8° .

Question 18 (Total 4 marks)

Mark	Answer / Working / Guidance
M1	Applies depreciation multipliers: $85,000 \times 0.88 \times 0.85 = 63,580$.
M1	Sets up year 3 multiplier: $63,580 \times (1 + x/100) = 66,759$.
M1	Solves for multiplier: $1 + x/100 = 66,759 / 63,580 = 1.05$.
A1	Correct value of x: 5.

Question 19 (Total 4 marks)

Mark	Answer / Working / Guidance
M1	Sets up direct proportion: $y = kt^2$; finds k using $y=20, t=2 \Rightarrow 20 = 4k \Rightarrow k = 5$, so $y = 5t^2$.
M1	Sets up inverse proportion: $t = m / \sqrt{x}$; finds m using $t=3, x=4 \Rightarrow 3 = m / 2 \Rightarrow m = 6$, so $t = 6 / \sqrt{x}$.
M1	Substitutes expression for t into y equation: $y = 5(6 / \sqrt{x})^2$.
A1	Simplifies to final formula: $y = 180 / x$.

Question 20 (Total 8 marks)

Mark	Answer / Working / Guidance
(a) Cumulative table	A1 for 8, 23, 60, 70, 77, 80.
(b) Graph	M1 for plotting points at upper class boundaries (200,8), (300,23) etc. A1 for smooth cumulative frequency curve.
(c) Median	A1 for estimate in range 335 - 355 (£).
(d) IQR	M1 for finding lower quartile (at 20 workers) and upper quartile (at 60 workers). A1 for IQR in range 85 - 105 (£).
(e) > £430	M1 for reading value at £430 on graph (~64 workers). A1 for correct subtraction: $80 - 64 = 16$ workers (tolerance 15-18).

Question 21 (Total 3 marks)

Mark	Answer / Working / Guidance
M1	Let $x = 0.38181\ldots$ then $100x = 38.1818\ldots$ and $1000x = 381.8181\ldots$
M1	Subtracts correctly: $990x = 378$ (or $99x = 37.8$).
A1	Simplifies $378/990$ to $21/55$ with full working shown.

Question 22 (Total 3 marks)

Mark	Answer / Working / Guidance
M1	Squares both sides: $p^2 = (2y + 5) / (3y - k)$.
M1	Multiplies out denominator and groups y terms: $p^2(3y - k) = 2y + 5 \Rightarrow 3yp^2 - kp^2 = 2y + 5 \Rightarrow 3yp^2 - 2y = kp^2 + 5$.
A1	Factorises and makes y subject: $y = (kp^2 + 5) / (3p^2 - 2)$.

Question 23 (Total 3 marks)

Mark	Answer / Working / Guidance
M1	Rearranges into quadratic form: $3x^2 - 14x - 5 \leq 0$ and factorises: $(3x + 1)(x - 5) \leq 0$.
M1	Finds critical values: $x = -1/3$ and $x = 5$.
A1	Correct inequality notation: $-1/3 \leq x \leq 5$.

Question 24 (Total 5 marks)

Mark	Answer / Working / Guidance
M1	Rearranges linear equation: $y = 7 - 2x$.
M1	Substitutes into circle equation: $x^2 + (7 - 2x)^2 - 4x + 2(7 - 2x) = 32$.
M1	Expands and simplifies to quadratic: $5x^2 - 20x + 15 = 0 \Rightarrow x^2 - 4x + 3 = 0$.
M1	Factorises $(x - 3)(x - 1) = 0$ to find $x = 3$, $x = 1$, then finds corresponding y values ($y = 1$, $y = 5$).
A1	Correct coordinates: $(3, 1)$ and $(1, 5)$.

Question 25 (Total 5 marks)

Mark	Answer / Working / Guidance
(a) Length of VM	M1 for finding half of base side (5 cm). M1 for using Pythagoras in vertical triangle VHM: $VM = \sqrt{(15^2 + 5^2)} = \sqrt{250}$. A1 for 15.8 cm (3 sf).
(b) Angle with base	M1 for identifying angle between slant height VM and base midpoint/edge ($\tan(\theta) = 15 / 5 = 3$). A1 for angle = 71.6° (1 dp).

Question 26 (Total 5 marks)

Mark	Answer / Working / Guidance
M1	Puts over common denominator: $[3(2x + 1) - 4(x - 2)] / [(x - 2)(2x + 1)] = 1$.
M1	Expands numerator: $6x + 3 - 4x + 8 = 2x + 11$, and expands denominator: $2x^2 - 3x - 2$.
M1	Equates and rearranges into quadratic: $2x^2 - 5x - 13 = 0$.
M1	Uses quadratic formula: $x = (5 \pm \sqrt{(25 - 4(2)(-13))}) / 4 = (5 \pm \sqrt{129}) / 4$.
A1	Correct values to 3 sf: $x = 4.09$ or $x = -1.59$.

Question 27 (Total 4 marks)

Mark	Answer / Working / Guidance
M1	Expands numerator: $(2 + \sqrt{3})^2 = 4 + 4\sqrt{3} + 3 = 7 + 4\sqrt{3}$.
M1	Multiplies numerator and denominator by conjugate $(2 + \sqrt{3})$.
M1	Expands denominator: $(2 - \sqrt{3})(2 + \sqrt{3}) = 4 - 3 = 1$, and multiplies numerators: $(7 + 4\sqrt{3})(2 + \sqrt{3}) = 14 + 7\sqrt{3} + 8\sqrt{3} + 12 = 26 + 15\sqrt{3}$.
A1	Correct final form $a + b\sqrt{3}$ with integers $a = 26$, $b = 15$.

Question 28 (Total 3 marks)

Mark	Answer / Working / Guidance
M1	Uses alternate segment theorem or angle in alternate segment: Angle CAD = Angle ACX = 42° .
M1	Uses opposite angles of a cyclic quadrilateral sum to 180° : Angle CDA + Angle ABC = 180° $\Rightarrow$ Angle CDA + $108^\circ = 180^\circ$.
A1	Correct angle size: 72° , with clear geometric reasons stated.
