Mark scheme

Non-Calculator Crossover Paper 1

40 marks · 45 minutes · Non-Calculator

M = method mark A = accuracy mark (depends on M marks) B = independent mark C = communication
ft = follow through cao = correct answer only oe = or equivalent isw = ignore subsequent working

Q	Answer	Mark	Guidance
1 N14	800	**M1**	for rounding at least two numbers to 1 significant figure, e.g. 40, 10 or 0.5
		A1	for 800 (accept 784 to 840 from sensible rounding)
			Total for Question 1: 2 marks
2(a) N8	$4\frac{1}{5}$	**M1**	for converting to improper fractions, e.g. $\frac{7}{3} \times \frac{9}{5}$
		A1	for $4\frac{1}{5}$ (accept $\frac{63}{15} = 4\frac{3}{15}$ simplified)
2(b)	$1\frac{5}{6}$ (oe, e.g. $\frac{11}{6}$)	**M1**	for a correct common denominator, e.g. $\frac{21}{6} - \frac{10}{6}$
		A1	for $1\frac{5}{6}$ oe
			Total for Question 2: 4 marks
3(a) N4	$2^2 \times 3 \times 7$	**M1**	for at least two correct steps of a factor tree or repeated division
		A1	for $2^2 \times 3 \times 7$ or $2 \times 2 \times 3 \times 7$
3(b)	840	**M1**	for $120 = 2^3 \times 3 \times 5$, or for listing multiples of both numbers (at least 3 of each)
		A1	for 840
			Total for Question 3: 4 marks
4 R9	£46.80	**M1**	for finding 35% of 80 (= 28) or 65% of 80 (= 52)
		M1	for 10% of their sale price (e.g. 5.20) subtracted, or their sale price × 0.9
		A1	for 46.80 (accept 46.8)
			A single reduction of 45% (= £44) scores 0 marks.
			Total for Question 4: 3 marks

Q	Answer	Mark	Guidance
5 R5	£240	**M1** **M1** **A1**	for recognising that the difference is 1 part, e.g. 3 – 2 = 1 for 1 part = 48, or for 48 × 5 for 240
			Total for Question 5: 3 marks
6(a) S6	Positive correlation	**B1**	for positive (ignore strength, e.g. strong positive) Accept a correct relationship in context, e.g. the more hours revising, the higher the mark.
6(b)	58 (accept 54 to 62)	**M1** **A1**	for a single straight line of best fit drawn between (1, 18) & (1, 30) and (10, 70) & (10, 80), or a vertical line drawn at 7 hours for an answer in the range 54 to 62
			Total for Question 6: 3 marks
7(a) A25	$6n - 1$	**M1** **A1**	for $6n + k$ where $k \neq -1$, or for $6n$ seen for $6n - 1$ oe
7(b)	No, with a reason, e.g. $6n - 1 = 140$ gives $n = 23.5$, which is not a whole number	**C1**	for No with a correct reason, e.g. all terms are 1 less than a multiple of 6 and 141 is not a multiple of 6, or 137 and 143 are consecutive terms ft their nth term from (a) if it is linear.
			Total for Question 7: 3 marks
8 P3	0.16	**M1** **A1**	for 1 – (0.32 + 0.2) (= 0.48) or $3x = 0.48$ for 0.16 oe
			Total for Question 8: 2 marks
9 A17	7	**M1** **M1** **A1**	for expanding the bracket correctly, $5x - 10$ for collecting terms correctly, e.g. $3x = 21$ for 7
			Total for Question 9: 3 marks
10 G3	62°	**M1** **A1** **C1**	for angle PRQ = 48° for 62 for both reasons: alternate angles are equal; angles in a triangle add up to 180° Accept the angles on a straight line at P route: angle APQ = 70° (alternate), then 180 – 48 – 70 = 62 (angles on a straight line add up to 180°).
			Total for Question 10: 3 marks

Q	Answer	Mark	Guidance
11(a) A4	$6y(2y + 3)$	**M1**	for a correct partial factorisation, e.g. $3y(4y + 6)$, $6(2y^2 + 3y)$ or $y(12y + 18)$
		A1	for $6y(2y + 3)$
11(b)	$(x + 5)(x - 3)$	**M1**	for $(x \pm 5)(x \pm 3)$
		A1	for $(x + 5)(x - 3)$
			Total for Question 11: 4 marks
12 G16 G17	$60 + 4.5\pi$	**M1**	for area of rectangle = 10×6 (= 60)
		M1	for area of semicircle = $\frac{1}{2} \times \pi \times 3^2$ (= 4.5π)
		A1	for $60 + 4.5\pi$ oe, e.g. $60 + \frac{9}{2}\pi$ Using a radius of 6 (giving 18π) scores M1 M0 A0 at most.
			Total for Question 12: 3 marks
13(a) N9	5.04×10^{-4}	**B1**	cao
13(b)	2.4×10^4	**M1**	for 24×10^3 or 24 000 seen
		A1	for 2.4×10^4
			Total for Question 13: 3 marks