Mark scheme

Non-Calculator Crossover Paper 10

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(a) N7	200	**B1**	cao
1(b)	100	**M1** **A1**	for 10^6 or 1 000 000 seen, or for 10^2 for 100 10^2 as a final answer scores M1 A0.
			Total for Question 1: 3 marks
2 N8	$2\frac{1}{2}$	**M1** **A1**	for $\frac{15}{4} \times \frac{2}{3}$ oe, or for writing both fractions with a common denominator, e.g. $\frac{15}{4} \div \frac{6}{4}$ for $2\frac{1}{2}$ oe, e.g. $\frac{5}{2}$, $\frac{30}{12}$ or 2.5
			Total for Question 2: 2 marks
3 N4	9:45 am	**M1** **A1**	for listing at least 3 multiples of 15 and of 25, or for 75 identified as the LCM, or for $15 = 3 \times 5$ and $25 = 5^2$ for 9:45 am oe, e.g. 09:45
			Total for Question 3: 2 marks
4(a) P3	12	**B1**	cao
4(b)	$\frac{16}{34}$ $(= \frac{8}{17})$	**M1** **A1**	for a numerator of their 12 + 4 (= 16), or a denominator of 34 for $\frac{16}{34}$ oe $\frac{16}{30}$ scores M1 A0.
			Total for Question 4: 3 marks

Q	Answer	Mark	Guidance
5 R11	90	**M1** **M1** **A1**	for converting the time, e.g. 100 minutes, $1\frac{2}{3}$ hours or $\frac{5}{3}$ hours for $150 \div \frac{5}{3}$ oe, or $150 \div 100 \times 60$, or 150 km in 100 minutes so 15 km in 10 minutes for 90 Using 1.4 hours (giving 107.1...) scores M0 M1 A0.
			Total for Question 5: 3 marks
6(a) R6	5 : 3	**B1**	for 5 : 3 oe 3 : 5 scores B0.
6(b)	96	**M1** **A1**	for $24 \div 2$ (= 12), or for 60 male or 36 female for 96
			Total for Question 6: 3 marks
7(a) A25	$8n - 5$	**M1** **A1**	for $8n + k$ where $k \neq -5$, or for $8n$ seen for $8n - 5$ oe $n + 8$ scores M0 A0.
7(b)	20th term	**B1**	for 20 or 20th (ft their linear nth term from (a) if it gives a whole number) $8n - 5 = 155$ gives $n = 20$
			Total for Question 7: 3 marks
8(a) S6	(25, 10)	**B1**	cao
8(b)	37 (accept 35 to 39)	**M1** **A1**	for a single straight line of best fit drawn between (12, 13) & (12, 17) and (42, 42) & (42, 46), or a vertical line drawn at 35 for an answer in the range 35 to 39
8(c)	4 is outside the range of the data (extrapolation)	**C1**	for a correct explanation, e.g. there are no data for maths marks below 12, 4 is outside the range of the data, or the trend may not continue
			Total for Question 8: 4 marks
9(a) A21	$2(x + 3)$	**B1**	for $2(x + 3)$ oe, e.g. $2x + 6$ $2x + 3$ scores B0.

Q	Answer	Mark	Guidance
9(b)	13	**M1** **M1** **A1**	for an expression for the total, e.g. $x + x + 3 + 2(x + 3)$ for forming and starting to solve an equation, e.g. $4x + 9 = 61$ or $4x = 52$ for 13 ft their expression from (a) for the method marks.
			Total for Question 9: 4 marks
10(a) G7	Rotation, 90° anticlockwise, centre (0, 0)	**B1** **B1** **B1**	for rotation for 90° anticlockwise (accept +90° or 270° clockwise) for centre (0, 0) or origin A combination of transformations scores 0 marks.
10(b)	Triangle with vertices (1, 0), (1, –2), (4, 0)	**B1**	cao
			Total for Question 10: 4 marks
11 G16	280	**M1** **M1** **A1**	for area of trapezium = $\frac{1}{2}(5 + 9) \times 4$ (= 28) for their area × 10 for 280 9 × 5 × 4 × 10 or 5 × 9 × 10 scores 0 marks.
			Total for Question 11: 3 marks
12(a) A22	$x < 4$	**M1** **A1**	for collecting terms correctly, e.g. $12 > 3x$ or $-3x > -12$ for $x < 4$ oe, e.g. $4 > x$ $x = 4$ or $x > 4$ scores M1 A0.
12(b)	1, 2, 3	**B1**	for 1, 2, 3 (ft their inequality from (a)) Including 0 scores B0.
			Total for Question 12: 3 marks
13(a) A11	–1 and 5	**B1** **B1**	for –1 for 5 Accept (–1, 0) and (5, 0).
13(b)	(2, –9)	**B1**	cao
			Total for Question 13: 3 marks