



**General Certificate of Secondary Education
Practice Paper
Set 2**

**Mathematics (Linear) B
Paper 2
Higher Tier**

4365

Mark Scheme

Mark Schemes

Principal Examiners have prepared these mark schemes for practice papers. These mark schemes have not, therefore, been through the normal process of standardising that would take place for live papers.

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Glossary for Mark Schemes

GCSE examinations are marked in such a way as to award positive achievement wherever possible. Thus, for GCSE Mathematics papers, marks are awarded under various categories.

- M** Method marks are awarded for a correct method which could lead to a correct answer.
- A** Accuracy marks are awarded when following on from a correct method. It is not necessary to always see the method. This can be implied.
- B** Marks awarded independent of method.
- M dep** A method mark dependent on a previous method mark being awarded.
- B dep** A mark that can only be awarded if a previous independent mark has been awarded.
- ft** Follow through marks. Marks awarded following a mistake in an earlier step.
- SC** Special case. Marks awarded within the scheme for a common misinterpretation which has some mathematical worth.
- oe** Or equivalent. Accept answers that are equivalent.
eg, accept 0.5 as well as $\frac{1}{2}$

Q	Answer	Mark	Comments
1	17.9	B2	B1 for 17.92(...)
2	Attempts to list all outcomes	M1	At least 4 correct
	Lists all outcomes correctly	M1	
	Identifies 12, 15, 16, 18, 25 and 36	M1	States 6 outcomes greater than 10
	$\frac{6}{12} = 50\%$	A1	
*3	$x + 5x + 2x + 80 = 360$	M1	
	$8x = 360 - 80$	M1	
	$x = 35$	A1	
	Angle $C = 35$ from $180 - 35 - 110$	A1	
	Logical solution to find x and stating that angle $A =$ angle B	Q1	Strand (ii) for correct conclusion
*4(a)	$340 + 340 + 250 (= 930)$	M1	oe
	$0.15 \times$ their 930 (=139.5)	M1	oe
	their 930 – their 139.5	M1	their 930 \times 0.85
	790.50 and yes	A1	
	Correct method for finding total cost with discount	Q1	Strand (iii)
4(b)	400×1.15	M1	$105.80 \div 1.15$
	460	A1	92
	$\frac{\text{their } 460 - 105.80}{460} \times 100$	M1	oe $\frac{400 - 92}{400} \times 100$
	77	A1	77
5(a)	$180 - \frac{360}{5}$	M1	oe
	108	A1	
5(b)	their 108 – $\left(\frac{180 - \text{their } 108}{2}\right)$	M1	oe
	72	A1	

Q	Answer	Mark	Comments
6(a)	No time frame	B1	
6(b)	No box for 4	B1	
7(a)	Correct heights plotted	B1	
	Mid values used and polygon drawn	B1	
7(b)	24 + 10 or 34	M1	
	$\frac{34}{60}$	A1	or any equivalent fraction, decimal or percentage
8(a)	Correct reflection drawn	B2	B1 for any reflection
8(b)	Rotation	B1	
	90° clockwise	B1	
	(3, 4)	B1	
9	Mid values seen	M1	210, 230, 250, 270, 290
	$210 (\times 1) + 230 \times 5 + 250 \times 6 + 270 \times 2 + 290 (\times 1)$ or $210 + 1150 + 1500 + 540 + 290$	M1	Allow one error
	$3690 \div 15$	M1	
	246	A1	
	4 hours 6 minutes	B1ft	257 minutes
10	(2, 2) and (6, 6)	B2	B1 for 2 and 6 seen or for x -coordinate of B equal to 3 times x -coordinate of A or coordinates of A and B so that midpoint is (4, 4), i.e. (1, 1) and (7, 7)
11(a)	$9 \times 25 \div 5 + 32$ or $(78 - 32) \times 5 \div 9$	M1	oe
	77 and no or 25.5(...) and no	A1	
11(b)	32 seen or reads off at 32	M1	
	80	A1	

Q	Answer	Mark	Comments
12(a)	$0.7a - 0.2a = 3 + 2$	M1	
	$0.5a = 5$	M1	
	10	A1	
12(b)	$4b - 8$	B1	
12(c)	$2c^6d^5$	B2	B1 for $2c^6$ or $2d^5$ seen as part of answer
12(d)	$2x(2x + 3y)$	B2	B1 for one part correct
12(e)	c^3	B1	
13	2.5 or $\frac{2}{5}$ seen	M1	$\frac{50}{20} = \frac{x}{16}$ oe
	16×2.5	M1	oe
	40	A1	
14	tan seen or used	M1	
	$\tan x = \frac{20}{25}$	M1	
	38.6... or 39	A1	
15	$5n - 3n$ or $16 + 7$	M1	
	$5n - 3n < 16 + 7$	M1	oe
	$n < 11.5$	A1	oe
16	$\frac{27000}{32000} \times 40$ or $\frac{5000}{32000} \times 40$	M1	oe
	33.75 and 6.25	A1	
	34 and 6	A1	
17(a)	5 and - 4	B2	B1 for each
17(b)	All five points plotted	B1	$\pm \frac{1}{2}$ square
	Smooth curve through five points	B1	

Q	Answer	Mark	Comments
17(c)	[1.5, 1.7]	B1ft	B1ft from their graph
18(a)	60	B1	May be on diagram
18(b)	(AOC =) 116 or (BOC =) 58	M1	May be on diagram
	C = 90 or 180 – 90 – 58	M1	May be on diagram
	32	A1	May be on diagram
*18(c)	70	B1	
	Alternate segment (theorem)	Q1	Strand (i)
19(a)	$H \propto d^2$ or $H = kd^2$	M1	Any letter for k
	$1.65 = k \times 0.1^2$	M1	oe
	$H = 165d^2$	A1	
19(b)	165×0.25^2	M1	
	10.3(125)	A1	
*20	17.95 or 18.05 seen	B1	
	5.95 or 6.05 seen	B1	
	$3 \times 5.95 (+ 0.09 + 0.09)$ $3 \times 6.05 (+ 0.09 + 0.09)$	M1	oe
	18.03 or 18.33	A1	
	18.03 and 18.33 and 17.95 and 18.05	A1	
	Cannot tell and valid conclusion	Q1	
21	$\vec{AM} = -2\mathbf{a} + \frac{4}{3}\mathbf{a} + \mathbf{b}$	M1	oe
	$\vec{AM} = -\frac{2}{3}\mathbf{a} + \mathbf{b}$	A1	
	$\vec{MB} = -\frac{4}{3}\mathbf{a} - \mathbf{b} + 3\mathbf{b}$	M1	oe
	$\vec{MB} = -\frac{4}{3}\mathbf{a} + 2\mathbf{b}$	A1	
	$MB = 2 AM$	B1ft	oe

Q	Answer	Mark	Comments
22	$8 \times 1.5 + 15 \times 2$	M1	
	$12 + 30$	M1	
	42	A1	
23(a)	$x^2 - 3x + x - 3$	M1	Allow one error
	$x^2 - 2x - 3$	A1	
23(b)	(width =) $12 \div (x + 1)$	M1	oe
	$2 \times 12 \div (x + 1) + 2(x + 1)$	M1	oe
	$2 \times 12 \div (x + 1) + 2(x + 1) = 4(x - 1)$ or $24 + 2(x + 1)^2 = 4(x - 1)(x + 1)$ or $24 + 2(x^2 + 2x + 1) = 4x^2 - 4$	M1	
	$2x^2 - 4x - 30 = 0$ or $x^2 - 2x - 15 = 0$	M1	
	or $(x - 5)(x + 3) = 0$	M1	
	5	A1	
Alt 23(b)	$4x - 4 - (2x + 2)$	M1	oe
	(w =) $x - 3$	M1	oe
	$(x - 3)(x + 1) = 12$ or $x^2 - 3x + x - 3 = 12$	M1	
	$x^2 - 2x - 15 = 0$	M1	
	or $(x - 5)(x + 3) = 0$	M1	
	5	A1	