



**General Certificate of Secondary Education
Practice Paper
Set 3**

Mathematics (Linear) B

Paper 2 Higher Tier 43652H

Mark Scheme

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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.
- Q** Marks awarded for quality of written communication. (QWC)
- 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 $\frac{1}{2}$

Paper 2 Higher Tier

Q	Answer	Mark	Comments
1	$\frac{30}{100} \times 360 (=180)$	M1	oe 70% seen
	$360 - \text{their } 108 (=252)$	M1	$\frac{70}{100} \times 360$
	Their 252 - 200	M1	
	52	A1	
2(a)	0, 2, 4, 6	B2	B1 for 2 or 3 correct
	$\frac{(0 + 2 + 4 + 6)}{4}$	M1	
	(Mean =)3	A1	
	(Median =)3	A1	
2(b)	$x - 1 = 10$ or $x = 11$ seen	M1	$x - 1 = 10$ or $x + \quad = 10$?
	$3x = 9$ and $x^2 = 9$ seen	A1	11, 3, 2.5, 3 any 2 correct
	$x = 3$	A1	
3	At least one trial	M1	eg, $a = 2, b = -1$ ie $3 \times 2 - 1 = 5$
	One correct pair	A1	eg $a = 0$ and $b = 2$ $a = 1$ and $b = -1$ $a = 2$ and $b = -4$ $a = 3$ and $b = -7$ $a = 4$ and $b = -10$ $a = 5$ and $b = -13$
	Second correct pair	A1	

Q	Answer	Mark	Comments
4	$p + 2p + 0.1 = 1$	M1	
	$3p = 1 - 0.1$	M1	
	$p = 0.3$	A1	
5(a)	All points joined	B1	Need not be straight
5(b)	Tests at least one formula	M1	
	Tests at least two formulae	M1	
	Formula 3	A1	
5(c)	Substitute into their answer to (b)	M1	
	45	A1ft	Note Formula 1 → 17 Formula 2 → 55
6(a)	Correct reflection drawn	B2	B1 For any reflection drawn
6(b)	Correct translation	B2	B1 For translation 3 units left or translation 2 units down
7(a)	$3800 \div 800$	M1	
	4.75	A1	
	4 hours 45 minutes seen	A1	
	1345	B1 ft	oe
7(b)	$(800) \times 1000$	M1	
	$\div 3600$	M1	oe
	222(...) or 220	A1	

Q	Answer	Mark	Comments
8(a)	$\frac{1}{2} (6 + 12) 7$	M1	oe
	$\frac{1}{2} (6 + 12) 7 \times 90$	M1 Dep	oe
	5670	A1	
8(b)	Their 5670×2.3	M1	
	13041	A1	
	13	B1 ft	
9	$75^2 + 38^2$	M1	
	$\sqrt{75^2 + 38^2}$	M1 Dep	
	84(.077...)	A1	
	Their 84×12.5	M1	
	1050(.966...)	A1	
10(a)	(Exterior = $180 - 150$) 30	B1	
10(b)	$360 \div$ their 30	M1	
	12	A1	
11	$\frac{1}{6} \times \frac{1}{6}$	M1	Sample space drawn listing 36 outcomes
	$\frac{1}{6} \times \frac{1}{6} \times 2$	M1	oe 3 outcomes identified eg, 3 outcomes circled or listed or $\frac{3}{36}$ seen
	Their $\frac{3}{36} \times 300$	M1	
	25	A1	

Q	Answer	Mark	Comments
12	$\frac{5}{7}$ or $\frac{7}{5}$ seen	M1	
	$4 \times \frac{7}{5}$ oe	M1	$\frac{5}{7} = \frac{4}{15-x}$ oe
	$4 \times \frac{7}{5} = 15 - x$	M1	$5(15 - x) = 4 \times 7$
	$28 = 75 - 5x$	M1 Dep	
	9.4	A1	
13(a)	1, 4, 10, 21, 30	A1	
13(b)	Plots at correct heights	M1	Allow one error
	Plots at UCBs	M1	
	Fully correct diagram	A1	
13(b)	Reads off at 15	M1	May be implied
	Reads off at 7.5 and 22.5	M1	
	At least 2 correct plots	A1	
	Fully correct	A1	

Q	Answer	Mark	Comments
14	$(500 + 130) \div 3$	M1	$500 - x$ seen or $2(130 + x)$
	210 and 420	A1	$500 - x = 2(130 + x)$
	500 – their 420 or 80 seen	M1	$500 - 260 = 2x + x$ or their $240 \div 3$ oe
	Their $\frac{80}{500} \times 100$ oe	A1	
	16%	A1ft	
15	5 and – 5	B2	B1 for 5 or – 5 or $(x - 5)(x + 5)$
16	$(AOB =) 180 - 25 - 25$	M1	
	130	A1	
	$(BOC =) 360 - 100 - \text{their } 130$	M1	
	130	A1	
	$OB = OA = OC$	B1	or 25° in $\triangle OBC$ oe
	SAS Congruent	Q1	Strand (ii)
17	cos seen	B1	
	$\cos 30 = \frac{x}{4}$	M1	oe
	3.46...	A1	Accept 3.5

Q	Answer	Mark	Comments
18(a)	Alternate segment (theorem)	Q1	Do not accept alternate
18(b)	$x = 65 - y$ or $x + 2y + 65 - y + 100 - x = 180$	B1	oe
18(c)	$65 - y + 2y = 80$ or $y + 165 = 180$	M1	Eliminates one variable
	$y = 15$ or $x = 50$	A1	
	$y = 15$ and $x = 50$	A1 ft	
19(a)	$6 - y$ not yellow out of 6 altogether or $1 - \frac{y}{6}$ seen	B1	oe
19(b)	$\frac{6 - y}{6} \times \frac{6 - y}{6} (= \frac{4}{9})$	M1	
	$\frac{6 - y}{6} \times \frac{6 - y}{6} = \frac{4}{9}$	M1	
	$36 - 6y - 6y + y^2 (= 16)$	M1	Allow one error
	$36 - 12y + y^2 = 16$	A1	
19(c)	$(y - 2)(y - 10)$	M1	$P(\text{not yellow}) = \frac{2}{3}$
	Cannot be 10 (as greater than 6) so 2	A1	$P(\text{yellow}) = \frac{1}{3}$ and $\frac{1}{3}$ of 6.2

Q	Answer	Mark	Comments
20	$16a^4b^{12}$	B2	B1 For two correct terms
21	$f(c - e)$ seen	B1	
	$cf - ef = d - c$	M1	
	$cf + c = d + ef$	M1	oe
	$c = \frac{d + ef}{f + 1}$	A1	
22	1350 or 1450 seen	B1	oe
	75 or 85 seen	B1	oe
	$1350 \div 85$	M1	
	15.8...	A1	
	15	Q1ft	Strand (i) rounding down