Solving Equations Graphically Past Paper Answers GCSE Edexcel

1.

estion	Answer	Mark	Mark scheme	Additional guidance
(a)	2, −4, 2, 8	B2	all 4 values correct	
		(B1	for 2 or 3 correct values)	
(b)	Graph	M1	(dep B1) for at least 5 points plotted correctly ft from part a	
		A1	for a fully correct curve drawn	Accept freehand curves drawn that are not line segments; there must be some attempt to draw the minimum point below $y = -4$
(c)	−2.6 or 1.6	B1	for 1 correct value, ft a non linear graph	Award for −2.6 or 1.6 or both values but do not award the mark if a correct value is given with an incorrect value. Accept 1.56 or −2.56 Note for ft to be applied if the graph may be joined by line segments

2.

(a)	0, –4, –6, –4, 0	B2 (B1	fully correct figures at least 2 correct figures)	
(b)	Graph	M1 A1	(dep B1) for at least 5 points correctly plotted ft from (a) fully correct graph	Must be a curve
(c)	2.6 and –1.6	M1	for $y = -2$ drawn **or** intersections with $y = -2$ **or** $y = x^2 - x - 4$ drawn **or** 1 correct value	If answers stated as coordinates, award M1 for both coordinates and M0 for one coordinate
		A1	ft a quadratic graph **or** for answers in the range 2.5 to 2.7 **and** −1.5 to −1.7	

3.

estion	Working	Answer	Mark	Notes
		Region R shaded	M1	for two of the lines $y = 1$, $x + y = 5$, $y = 2x$ correctly drawn
			M1	for three lines correctly drawn
			A1	for fully correct region indicated with all lines correct

4.

$y \geq -2, y \geq x$ and $y \leq 0.5x + 1$	M1 M1 M1 A1	$y = -2$ indicated; accept any inequality for "=" $y = x$ oe indicated; accept any inequality for "=" $y = 0.5x + 1$ oe indicated; accept any inequality for "=" $y \geq -2, y \geq x$ and $y \leq 0.5x + 1$

5.

stion	Working	Answer	Mark	
(a)		1, −3	B1	cao
(b)		−0.75, 2.75	B1	accept −0.7 to −0.8, 2.7 to 2.8
(c)		−2.8	B1	cao

6.

Working	Answer	Notes
	Region R	M1 for one line correctly drawn M1 for two lines correctly drawn M1 for three lines correctly drawn A1 fully correct region indicated with all lines correct

7.

(a)		(1, 4)	B1	
(b)		−0.4, 2.4	B1	
(c)		3.75	B1	accept 3.7 – 3.8

8.

stion	Working	Answer	Mark	Notes
(a)		5, −1, 5	2	B2 for all 3 correct (B1 for 1 or 2 correct)
(b)		Correct graph	2	M1 ft for 5, 6 or 7 points plotted correctly, provided at least B1 awarded in (a) A1 for a fully correct graph (no line segments)
(c)		−0.6, 3.6	2	M1 for use of $y = 3$ A1 for −0.5 to −0.7, 3.5 to 3.7 (ft quadratic graph)

9.

(a)		0.5, 1, 4, 8	2	B2 for all 4 correct (B1 for 2 or 3 correct)
(b)	Correct graph		2	M1 for at least 5 points plotted correctly from their table, provided at least B1 scored in part (a) A1 cao for a correct graph drawn from (–2, 0.25) to (3, 8)

x	–2	–1	0	1	2	3
y	0.25	**0.5**	**1**	2	**4**	**8**

10.

estion	Working	Answer	Mark	Notes
(a)(i)		–0.4 to –0.5 4.4 to 4.5	3	B1 for value in range –0.4 to –0.5 and value in range 4.4 to 4.5 NB: condone values given as part of coordinates.
(ii)		–1.0 to –1.2 5.0 to 5.2		M1 for $x^2 - 4x - 2 = 4$ or line $y = 4$ drawn on graph or points marked with a y coord. of 4 or a value in range –1.0 to –1.2 or a value in range 5.0 to 5.2 A1 for value in range –1.0 to –1.2 and value in range 5.0 to 5.2; do not accept coordinates.
(b)		–1.6 to –1.8 4.6 to 4.8	3	M1 for $x + y = 6$ drawn on graph A2 for value in range –1.6 to –1.8 and value in range 4.6 to 4.8 (A1 for one correct value or both values given as coordinates)

11.

estion	Working	Answer	Mark	Notes
(a)		–1, 1, –1	2	B2 for all correct (B1 for 1 or 2 correct)
(b)		Correct graph	2	M1 ft for 4 or 5 points from their table plotted correctly, provided at least B1 awarded in part (a) A1 for a fully correct graph (no line segments)

12.

estion	Working	Answer	Mark	Notes
(a)		2, 0, 0, 6	2	B2 for 2, 0, 0, 6 (B1 for at least two of 2, 0, 0, 6); could be taken from graph
(b)		Correct curve	2	M1 (ft) for at least 5 points plotted correctly A1 for a fully correct curve
(c)		−0.6, 3.6	2	M1 (ft if M1 awarded in (b) and at least B1 in (a)) for indicating a point or line drawn at y=4, or one solution given A1 (ft) for both solutions

13.

estion	Working	Answer	Mark	Notes
(a)		Circle drawn	2	B2 fully correct circle drawn (B1 for circle drawn with centre (0,0) or circle drawn with radius 4) OR M1 at least 5 correct points calculated and plotted A1 fully correct circle drawn
(b)		$x = 1.4,\ y = 3.8$ $x = -2.2, y = -3.4$	3	M1 for $y = 2x + 1$ drawn or for elimination of one variable A1 for one correct pair of values given or for $x = 1.4, -2.2\ (\pm 0.2)$ or ft from graph provided 2 marks in (a) A1 for second correct pair of values given (± 0.2) or ft from graph provided 2 marks in (a)