1	a		(3, −1)	1	B1	
	b		(×) at (−2, −4)	1	B1	condone missing label as long on unambiguous
	c		(−1, 2)	2	B2	B1 for (−1, a) where $a \neq 2$ **or** (b, 2) where $b \neq -1$
	d		$x = 4$ drawn	1	B1	
						Total 5 marks

2	(a)	(2, 3)	1	B1	
	(b)	(−3, −1)	1	B1	
	(c)	(−0.5, 1)	2	B2	B1 for (−0.5, y) or (x, 1) or (1, −0.5)
					Total 4 marks

3	(a)	$\frac{5+13}{2}$ or $\frac{-4+1}{2}$		2	M1 for a correct method to find one coordinate **or** for one coordinate correct **or** for (−1.5, 9)
			(9, −1.5)		A1 Accept $(9, -\frac{3}{2})$
	(b)		−3	1	B1
	(c)		No with reason	1	B1 No (oe) and e.g. line goes through (100, −298) or (101.3..), −302) or $\left(\frac{304}{3}, -302\right)$ or (3 × 100) − 302 = −2 not (+)2
					Total 4 marks

4	(a)		(−2, 3)	1	B1	
	(b)		Isosceles	1	B1	allow incorrect spelling if meaning is clear
	(c)		(×) at (1, −4)	1	B1	clearly indicated by cross or dot - condone missing label as long as unambiguous

	(d)		(1, 2)	2	B2
					
					(B1
						for (1, 2)
						
						for (1, a) where $a \neq 2$
						or (b, 2) where $b \neq 1$
						or ((−2 + 4) ÷ 2, a)
						or (b, (3 + 1) ÷ 2) or for the midpoint unambiguously marked)

						Total 5 marks

5	a		(−2, 3)	1	B1	
	b		(×) at (4, −2)	1	B1	condone missing label as long as unambiguous
	c		$y = -3$	1	B1	oe
						Total 3 marks

6	(a)		(−1, 3)	1	B1	
	(b)		(5, 1)	2	B1 B1	for $x = 5$ for $y = 1$
	(c)	$\frac{1}{2} \times 6 \times 4$ oe		2	M1	for a correct method
			12		A1	
	(d)		D indicated at (−1, −1)	1	B1	label not required if coordinate clearly indicated
						Total 5 marks

7	(a)	$(18-3)^2+(7--1)^2$ oe or $15^2+8^2\,(=289)$ oe		3	M1
		$\sqrt{(18-3)^2+(7--1)^2}$ $(=\sqrt{"289"})$			M1
			17		A1
	(b)	13 + 6 > "17"	correct reason	1	A1ft dep M1 **Acceptable examples** "They overlap by 2cm" "The distance between the centres is less than the sum of the radii" "17 is less than the distance than the total of the radii" "19 is bigger than the distance between the centres" **Not acceptable examples** "19 is greater than the distance between the circles" oe "The circumference of each circle overlaps"
					Total 4 marks

8	(a)(i)		(3, 4)	1	B1
	(ii)		(−1, 2)	1	B1
	(b)		Cross at (7, 2)	1	B1
	(c)		(1, 3)	2	B2 for (1, 3) (B1 for one coordinate correct)
					Total 5 marks

9	(b)		(−1, 2)	2	B2 for both coordinates correct If not B2, then B1 for one correct coordinate or (2, –1)

10	(a)		(1, 0)	1	B1
	(b)		Cross marked at (3, −2)	1	B1
	(c)		(−3, −1)	2	B2 for (−3, −1) If not B2 then award B1 for (−3, a) where $a \neq -1$ **or** (b, −1) where $b \neq -3$ **or** (−1, −3)
	(d)		$y = 3$	1	B1
					Total 5 marks

11	$[k=]\ \frac{6+17}{2}$ **or** $[k=]\ 6+\frac{17-6}{2}$ **or** $[j=]\ 4+2(15-4)$ **or** [j =] 15 + (15 − 4) **or** $\frac{4+j}{2}=15$			3	M1
	Correct answers score full marks (unless from obvious incorrect working) 1 correct answer will score M1A1 and both will score M1A1A1	26			A1
		11.5			A1 oe eg $\frac{23}{2}$ both answers the wrong way round scores M1A1 unless the correct answers are clearly labelled in working space

12	(a)(i)		(2, 6)	1	B1 cao
	(ii)		(−4, 3)	1	B1 cao
	(b)		Cross at (4, 2)	1	B1 cao
					Total 3 marks

13	(a)		(2, 3)	1	B1
	(b)		For the point (6, 1) marked	1	B1 If not marked D then award marks so long as unambiguous.
	(c)		(3.5, 1)	2	B2 oe for both coordinates correct (B1 for a correct calculation for one coordinate $\frac{2+5}{2}$ or $\frac{3+-1}{2}$ or for one correct coordinate or for (1, 3.5))
	(d)		line drawn	1	B1 horizontal line drawn – any length as long as unambiguous
					Total 5 marks