

1		$x=0, y=5$ $x=-4, y=-3$	M1	Initial process of substitution eg $x^2 + (2x + 5)^2 (=25)$
			M1	for expanding and simplifying eg $x^2 + 4x^2 + 10x + 10x + 25 (=25)$
			M1	Use of factorisation or correct substitution into quadratic formula or completing the square to solve an equation of the form $ax^2 + bx + c = 0, a \neq 0$
			A1	correct values of x or y
			C1	$x = 0, x = -4, y = 5, y = -3$ correctly matched x and y values

2		$x = -\frac{24}{5}$ $y = -\frac{7}{5}$ $x = -3,$ $y = 4$	M1	for substitution of a rearrangement of $y - 3x = 13$ e.g. $(3x + 13)^2 + x^2 = 25$
			M1	(dep M1) for expansion of bracket after substitution (at least 3 terms correct out of the 4 terms) e.g. $9x^2 + 39x + 39x + 169$
			M1	for forming quadratic ready for solving e.g. $10x^2 + 78x + 144 (=0)$
			M1	for factorising e.g. $(5x + 24)(x + 3) (=0)$ oe
			A1	$x = -\frac{24}{5}, y = -\frac{7}{5}$ and $x = -3, y = 4$ SC: B1 (if M0) for all 4 values mis-associated or one correct pair of values or values given as coordinates.

3		$x = -\frac{2}{3}$ $y = -2$	M1	for a method to eliminate one variable (condone one arithmetic error)
			M1	(dep) for substituting found value in one of the equations or appropriate method after starting again (condone one arithmetic error)
			A1	$x = -\frac{2}{3}$ oe and $y = -2$

4	(a)	Correct graph	B2	for a circle radius 3.5, centre (0, 0)	Circle could be drawn freehand as long as it approximates to a circle $2x + y = 1$ does not have to be shown Use professional judgment Accept values given as coordinates. Check graph for answers
			(B1)	for a circle centre (0, 0) of a different radius, or for a circle drawn of radius 3.5 centre not (0, 0) or incomplete correct circle)	
	(b)	$x = 2.0, y = -2.9$ $x = -1.2, y = 3.3$	M1	for $2x + y = 1$ drawn, or for correctly eliminating one variable, eg $x^2 + 1 - 4x + 4x^2 = 12.25$ or $x^2 + (1 - 2x)^2 = 12.25$	
			A1	for the pair of x values, or the correct pair of y values, or one correct pair of x/y values ft from (a) (dep on B1)	
A1	for both correct pair of x/y values, unambiguously matched ft from (a) (dep on B1)				

5	$x = 4.5, y = -1.5$	M1	correct process to eliminate one variable (condone one arithmetic error)	Fractions do not need to be in simplest form
		M1	(dep) for substituting found value in one of the equations OR correct process after starting again (condone one arithmetic error)	
		A1	for $x = 4.5, y = -1.5$ oe	

6	$x = 2.2$ to 2.3 $y = -1.3$ to -1.4	M1	for recognition of use of intersection point, one of the solutions given, solutions reversed or solutions given as a coordinate.
		A1	x given in the range 2.2 to $2.3, y$ given in the range -1.3 to -1.4

7	$x = 3\frac{2}{5}, y = -\frac{4}{5}$ $x = 5, y = -2$	M1	for substitution of a rearrangement eg $x = \frac{7-4y}{3}$ or $y = \frac{7-3x}{4}$ into $x^2 - 4y^2 = 9$ or expansion of $\left(\frac{7-4y}{3}\right)^2 = \frac{49-56y+16y^2}{9}$ or $\left(\frac{7-3x}{4}\right)^2 = \frac{49-42x+9x^2}{16}$	Expansion may not be in simplest form but must be correct Note we do not need to see “= 0”; just the LHS is sufficient. Can be implied by both x values correct or both y values correct. Answers must be correctly paired. Accept coordinate pairs
		M1	for correct expansion and substitution eg $\frac{49-56y+16y^2}{9} - 4y^2 = 9$ or $x^2 - 4\left(\frac{49-42x+9x^2}{16}\right) = 9$	
		A1	for forming quadratic ready for solving eg $-20y^2 - 56y - 32 (= 0)$ or $5y^2 + 14y + 8 (= 0)$ oe or $5x^2 - 42x + 85 (= 0)$ oe	
		M1	fit a 3 term quadratic, factorising eg $(5y + 4)(y + 2) (= 0)$ or $(5x - 17)(x - 5) (= 0)$ or correct use of formula eg $(y =) \frac{-14 \pm \sqrt{14^2 - 4 \times 5 \times 8}}{2 \times 5}$ or $(x =) \frac{-42 \pm \sqrt{42^2 - 4 \times 5 \times 85}}{2 \times 5}$ or completing the square, eg $(y + \frac{7}{5})^2 - \frac{9}{25} (= 0)$ or $(x - \frac{21}{5})^2 - \frac{16}{25} (= 0)$	
		A1	correctly pairs x and y values: $x = 3\frac{2}{5}, y = -\frac{4}{5}$ oe, $x = 5, y = -2$	