1		e.g. $a = (-3 + 47) \div 2\ (= 22)$ or $\dfrac{11+b}{2} = -19\ (b = -38 - 11 = -49)$ or method to add 25 to -3 or method to subtract 25 from 47 or method to subtract 30 from -19 or method to subtract 60 from 11		2	M1	for a correct method to find either coordinate or one coordinate correct. Look for correct method on their diagram, if used.
			$a = 22,\ b = -49$		A1	both correct
						Total 2 marks

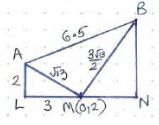| 2	(i)		$(-3, -2)$	1	B1	
	(ii)		$(-1.5, 4)$	1	B1	oe
						Total 2 marks

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

4		$\left(\dfrac{-1+2}{2}, \dfrac{5+10}{2}\right)$ **or** $(0.5, 7.5)$ oe		5	M1	
		$\dfrac{10-5}{2-(-1)}\left(=\dfrac{5}{3}\right)$ oe			M1	
		$m \times {}^{`}\dfrac{5}{3}{}^{'} = -1$ oe **or** $m = -\dfrac{3}{5}$ oe			M1	ft their gradient for use of $m_1 \times m_2 = -1$
		${}^{`}7.5{}^{'} = {}^{`}-\dfrac{3}{5}{}^{'} \times {}^{`}0.5{}^{'} + c$ **or** $c = 7.8$ oe **or** $y - {}^{'}7.5{}^{'} = {}^{'}-\dfrac{3}{5}{}^{'}(x - {}^{'}0.5{}^{'})$			M1	ft dep on first M1 and third M1
			$5y + 3x = 39$		A1	oe where p, q and r must be integers
						Total 5 marks

5	(a)			4	B1	$b = 14$
		(Gradient AB =) $\dfrac{12}{5}$ oe or eg $\dfrac{10--2}{1--4}$ oe			M1	For the gradient of AB
		(Gradient BC =) $-\dfrac{5}{12}$ oe			M1	Ft correct use of $m_1 \times m_2 = -1$ for *their* gradient of AB or $a = 2.5$ or $c = -9.5$
			$a = 2.5,\ c = -9.5$		A1	for $a = 2.5$ and $c = -9.5$
	(b)	$(AB =) \sqrt{(1--4)^2 + (10--2)^2}$ $(= \sqrt{5^2 + 12^2}\ (= 13))$		3	M1	
		$(BC =) \sqrt{(19-1)^2 + (10-2.5)^2}$ $(= \sqrt{18^2 + 7.5^2}\ (= 19.5))$ **or** $\sqrt{(19-1)^2 + (10 - \text{their } a)^2}$ **or** $1.5 \times$ "13"			M1	ft their value of a
			65		A1	
						Total 7 marks

6	(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

7	(gradient $AM =$) $\dfrac{4-2}{-3-0}$ oe $(=-\dfrac{2}{3})$		7	M1	A correct method to find gradient of AM
	$y = \dfrac{3}{2}x + 2$ or eg $\dfrac{y-2}{x} = \dfrac{3}{2}$ oe			M1	For the correct equation of the line passing through BD or for a correct expression involving the x and y coordinates of point B or point D
	$(x--3)^2 + (y-4)^2 = 6.5^2$ or $(x-0)^2 + (y-2)^2 = 6.5^2 - [(-3-0)^2 + (4-2)^2]$ oe eg $x^2 + (y-2)^2 = 29.25$			M1	A correct equation in x and y to find the coordinates of B and D
	eg $x^2 + 6x + 9 + y^2 - 8y + 16 - 42.25 = 0$ oe or $x^2 + y^2 - 4y + 4 - 29.25 = 0$ oe			M1	Brackets expanded
	eg $x^2 + 6x + 9 + \left(\dfrac{3}{2}x+2\right)^2 - 8\left(\dfrac{3}{2}x+2\right) + 16 - 42.25 = 0$ $\left(\dfrac{2y-4}{3}\right)^2 + y^2 - 4y + 4 - 29.25 = 0$ oe			M1	For a correct substitution into a correct equation to get an equation in either x only or y only
	eg $\dfrac{13}{4}x^2 = \dfrac{117}{4}$ or $13y^2 - 52y - 211.25 = 0$ oe			M1	A fully correct simplified equation in x or in y – all brackets expanded and like terms grouped.
		$(3, 6.5)$ $(-3, -2.5)$		A1	correct coordinates SCB3 for one pair of correct coordinates or both x values correct or both y values correct
					Total 7 marks

7 Alt 1	$(AM =)\sqrt{3^2 + 2^2}$ $(=\sqrt{13} = 3.605...)$ or $(AM^2 =)3^2 + 2^2(=13)$		7	M1	Use of Pythagoras for point A to point M
	$(BM =)\sqrt{6.5^2 - "\sqrt{13}"^2}$ $(=\sqrt{29.25} = \dfrac{3\sqrt{13}}{2} 5.4083...)$			M1	A correct method to find the length of BM or DM
	$(SF =)\dfrac{\sqrt{29.25}}{\sqrt{13}} = \dfrac{3}{2}$ oe **or** $MN = x$, $BN = 1.5x$ (*see diag*) or $(LAM =)\sin^{-1}\dfrac{3}{\sqrt{13}} (=56.3...)$ oe **or** $(LMA =)\cos^{-1}\dfrac{3}{\sqrt{13}} (=33.6...)$ **or**			M1	A correct method to find the SF of the enlargement of the sides AM to BM or angle LAM OR LMA
	eg $\overrightarrow{MB}_x = \dfrac{3}{2} \times 2$ or $\overrightarrow{MB}_y = \dfrac{3}{2} \times 3$ or $\overrightarrow{MD}_x = -\dfrac{3}{2} \times 2$ or $\overrightarrow{MD}_y = -\dfrac{3}{2} \times 3$ oe or $x^2 + (1.5x)^2 = \sqrt{29.25}^2$ **or** $MN = \sqrt{29.25}\cos 56.3...(=3)$ oe or $BN = \sqrt{29.25}\sin 56.3...(=4.5)$ oe *turn over*			M1	A correct method to find the translation of at least one component of MB or MD (need not be written in vector form) OR correct Pythagoras statement using the SF to find x coordinates OR 1 correct trig statement to find translations from M
	$\overrightarrow{MB}_x = \dfrac{3}{2} \times 2$ **and** $\overrightarrow{MB}_y = \dfrac{3}{2} \times 3$ or $\overrightarrow{MD}_x = -\dfrac{3}{2} \times 2$ **and** $\overrightarrow{MD}_y = -\dfrac{3}{2} \times 3$ oe **or** $x^2 + 2.25x^2 = 29.25$ **or** $MN = \dfrac{3\sqrt{13}}{2}\cos 56.309...(=3)$ **and** $BN = \dfrac{3\sqrt{13}}{2}\sin 56.309...(=4.5)$ oe			M1	A correct method to find the translation of both components of MB or MD (need not be written in vector form) OR correct Pythagoras statement with no brackets using the SF to find x coordinates OR 2 correct trig statements to find translations from M

	eg $(0, 2)$ is translated $\begin{pmatrix} 3 \\ 4.5 \end{pmatrix}$ or $(0+3, 2+4.5)$ $(=(3, 6.5))$ or $(0, 2)$ is translated $\begin{pmatrix} -3 \\ -4.5 \end{pmatrix}$ or $(0-3, 2-4.5)$ $(=(-3, -2.5))$ oe **or** $3.25x^2 = 29.25$				M1	correct method to find the coordinates of B or D or one pair of correct coordinates **or** a correct method to find both x coordinates or both y coordinates OR a fully correct simplified equation in x all brackets expanded and like terms grouped.
			$(3, 6.5)$ $(-3, -2.5)$		A1	correct coordinates SCB3 for one correct coordinate or both x values correct or both y values correct
						Total 7 marks

8	$3y^2 + 7y + 16 = (2y-1)^2 - (2y-1)$	$3\left(\dfrac{x+1}{2}\right)^2 + 7\left(\dfrac{x+1}{2}\right) + 16 = x^2 - x$		5	M1 substitution of linear equation into quadratic.
	E.g. $y^2 - 13y - 14\ (= 0)$ oe $y^2 - 13y = 14$	E.g. $x^2 - 24x - 81\ (= 0)$ oe $x^2 - 24x = 81$			A1 (dep on M1) writing the correct quadratic expression in form $ax^2 + bx + c\ (= 0)$ allow $ax^2 + bx = c$
	E.g. $(y-14)(y+1)\ (= 0)$ or $(y=)\dfrac{-(-13)\pm\sqrt{(-13)^2 - 4\times1\times-14}}{2}$ or $\left(y - \dfrac{13}{2}\right)^2 - \left(\dfrac{13}{2}\right)^2 = 14$ oe	E.g. $(x+3)(x-27)\ (= 0)$ or $(x=)\dfrac{-(-24)\pm\sqrt{(-24)^2 - 4\times1\times-81}}{2}$ or $\left(x - \dfrac{24}{2}\right)^2 - \left(\dfrac{24}{2}\right)^2 = 81$ oe			M1 (dep on M1) for the first stage to solve their 3-term quadratic equation (allow one sign error and some simplification – allow as far as $\dfrac{13\pm\sqrt{169+56}}{2}$ or $\dfrac{24\pm\sqrt{576+324}}{2}$ or eg $\left(x - \dfrac{24}{2}\right)^2 - 225$ oe
	$(x =)\ 2\times'14'-1$ and $2\times'-1'-1$	$(y =)\ \dfrac{'27'+1}{2}$ and $\dfrac{'-3'+1}{2}$ oe			M1 (dep on previous M1) may be implied by values of y or x that are consistent with a correct substitution.
			$(27, 14)$ and $(-3, -1)$		A1 for both solutions dep on M2 Must be paired correctly. accept $x = 27, y = 14$ and $x = -3, y = -1$
					Total 5 marks

9	$(\text{gradient } AB =)\dfrac{10--5}{p--1}\left(= \dfrac{10+5}{p+1} = \dfrac{15}{p+1}\right)$ oe or $(\text{gradient } BC =)\dfrac{q--5}{8--1}\left(= \dfrac{q+5}{8+1} = \dfrac{q+5}{9}\right)$ oe or $(\text{gradient } AC =)\dfrac{10-q}{p-8}$ oe **or** $\sqrt{(p--1)^2 + (10--5)^2}$ or $(p--1)^2 + (10--5)^2$ or $\sqrt{(8--1)^2 + (q--5)^2}$ or $(8--1)^2 + (q--5)^2$ or $\sqrt{(8-p)^2 + (q-10)^2}$ or $(8-p)^2 + (q-10)^2$ oe		5	M1 for finding the gradient of AB or BC or AC This may be seen embedded in $m_1 \times m_2 = -1$ **or** for finding the length of AB or BC or AC (or AB^2 etc)
	• $'\dfrac{15}{p+1}' \times '\dfrac{q+5}{9}' = -1$ or $'\dfrac{15}{p+1}' = -'\dfrac{9}{q+5}'$ or $9p + 15q = -84$ oe • $'\dfrac{10-q}{p-8}' = -\dfrac{6}{7}$ or $6p - 7q = -22$ oe • $(p--1)^2 + (10--5)^2 + (8--1)^2 + (q--5)^2 = (8-p)^2 + (q-10)^2$ or $18p + 30q = -168$ **Alternative for the second point** • $\dfrac{6}{7}p + 10 = -8\times-\dfrac{6}{7} + q$ oe			M2 for two out of the three of: • using $m_1 \times m_2 = -1$ • using the gradient of AC to form an equation. • using Pythagoras theorem If not M2, then M1 for one of the equations. **Alternative for the second point** obtaining this equation by using $y = mx + c$ with coordinates of A and C separately, and then eliminating c)

	Elimination	Substitution			M1 (dep M3) for correct method to eliminate one variable – multiplying one or both equations so the coefficient of x or y is the same in both, with the correct operation to eliminate one variable (condone one arithmetic error) **or** isolating p or q in one equation and substituting into the other (condone one arithmetic error).
	E.g. $54p + 90q = -504$ $54p - 63q = -198$ With subtraction **or** $153q = -306$ **or** $63p + 105q = -588$ $90p - 105q = -330$ With the operation of addition **or** $153p = -918$	E.g. $6\left(\dfrac{-84-15q}{9}\right) = -22$ or $6p - 7\left(\dfrac{-84-9p}{15}\right) = -22$ or $9\left(\dfrac{-22+7q}{6}\right) + 15q = -84$ or $9p + 15\left(\dfrac{6p+22}{7}\right) = -84$			
			$p = -6$ and $q = -2$		A1 for $p = -6$ and $q = -2$ Must be clearly identified
					Total 5 marks

10	eg $\left(\dfrac{-4+2}{2}, \dfrac{6+3}{2}\right)$ or $(-1, 4.5)$ oe		6	M1	for method to find the midpoint of AB
	eg $\dfrac{6-3}{-4-2}\left(=\dfrac{3}{-6}\right)$ oe **or** $-\dfrac{1}{2}$ oe or -0.5			M1	for method to find the gradient of AB
	eg $m \times "-0.5" = -1$ oe **or** $m = 2$			M1	for use of $m_1 m_2 = -1$ to find the gradient of the line of symmetry
	eg $y - 8 = "-0.5"(x - (-1))$ **or** $8 = "-0.5" \times -1 + c$ **or** $\dfrac{y-8}{x-(-1)} = "-0.5"$ **or** $y - 4.5 = "2"(x - (-1))$ **or** $4.5 = "2" \times -1 + c$ **or** $\dfrac{y-4.5}{x-(-1)} = "2"$			M1	for method to find an equation for CD **or** the line of symmetry
	eg $2x + 6.5 = -0.5x + 7.5$ **or** $\dfrac{y-6.5}{2} = \dfrac{y-7.5}{-0.5}$			M1	for a correct linear equation to find the x or y coordinate of E
	Correct answer scores full marks (unless from obvious incorrect working)	$(0.4, 7.3)$		A1	oe
					Total 6 marks

ALTERNATIVE (using the length of CD):

10	eg $\dfrac{6-3}{-4-2}\left(=\dfrac{3}{-6}\right)$ oe **or** $-\dfrac{1}{2}$ oe or -0.5		6	M1	for method to find the gradient of AB
	eg $y - 8 = "-0.5"(x + 1)$ **or** $8 = "-0.5" \times -1 + c$ **or** $\dfrac{y-8}{x-(-1)} = "-0.5"$			M1	for method to find an equation for CD
	eg $\sqrt{(-1-(-4))^2 + (8-6)^2} (=\sqrt{13})$			M1	for method to find the length of AD or AD^2
	eg $\sqrt{(x-2)^2 + (7.5-0.5x-3)^2} = "\sqrt{13}"$ **or** $\sqrt{(15-2y-2)^2 + (y-3)^2} = "\sqrt{13}"$			M1	for setting up an equation for the x or y coordinate of C
	$(1.8, 6.6)$ oe			M1	for the correct coordinates for C
	Correct answer scores full marks (unless from obvious incorrect working)	$(0.4, 7.3)$		A1	oe
					Total 6 marks

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

12	eg $\begin{pmatrix}7\\-2\end{pmatrix}+\begin{pmatrix}-3\\5\end{pmatrix}$ or $\begin{pmatrix}4\\3\end{pmatrix}$ or $-\begin{pmatrix}7\\-2\end{pmatrix}-\begin{pmatrix}-3\\5\end{pmatrix}$ or $\begin{pmatrix}-4\\-3\end{pmatrix}$			5	M1	for a method for finding $\overrightarrow{AC}$ or $\overrightarrow{CA}$ or for sight of $\begin{pmatrix}4\\3\end{pmatrix}$ or $\begin{pmatrix}-4\\-3\end{pmatrix}$
	eg $\left(\overrightarrow{AC}=\right)\sqrt{"4"^2+"3"^2}\left(=\sqrt{25}=5\right)$				M1	(dep on previous M1) for a method to find the magnitude of $\overrightarrow{AC}$ or $\overrightarrow{CA}$
	eg $\left(\overrightarrow{AB}=\right)\sqrt{7^2+(\pm2)^2}\left(=\sqrt{53}=7.28(010)\right)$ or $\left(\overrightarrow{BC}=\right)\sqrt{(\pm3)^2+5^2}\left(=\sqrt{34}=5.83(095)\right)$				M1	(indep) for a method to find the magnitude of either $\overrightarrow{AB}$ or $\overrightarrow{BC}$
	$"\sqrt{7^2+(\pm2)^2}"+"\sqrt{(\pm3)^2+5^2}"$ or $"\sqrt{53}"+"\sqrt{34}"(=13.1(110))$ or "7.28" + "5.83" (= 13.1(110))				M1	(dep on previous M1) for a complete method to find Pru's distance travelled
	Correct answer scores full marks (unless from obvious incorrect working)		8.1		A1	accept 8.1 – 8.2, to award full marks $\overrightarrow{AC}$ must be correct
						Total 5 marks

13	Eg $(2x+1)^2+x(2x+1)=7$	eg $y^2+\left(\dfrac{y-1}{2}\right)y=7$		5	M1 for substitution of $y=\pm2x\pm1$ (or $x=\dfrac{\pm y\pm1}{2}$) into $y^2+xy=7$ to obtain an equation in x only (or y only)
	E.g. $6x^2+5x-6(=0)$ $6x^2+5x=6$	E.g. $3y^2-y-14(=0)$ $3y^2-y=14$			M1ft dep on previous M1 for multiplying out and collecting terms, forming a three term quadratic in any form of $ax^2+bx+c(=0)$ where at least 2 coefficients (a or b or c) are correct
	E.g. $(2x+3)(3x-2)(=0)$ or $x=\dfrac{-5\pm\sqrt{5^2-4\times6\times-6}}{2\times6}$ or $\left(x+\dfrac{5}{12}\right)^2-\left(\dfrac{5}{12}\right)^2=1$ $\left(x=-\dfrac{3}{2}\text{ and }x=\dfrac{2}{3}\right)$	E.g. $(y+2)(3y-7)(=0)$ or $y=\dfrac{-(-1)\pm\sqrt{(-1)^2-4\times3\times-14}}{2\times3}$ or $\left(y-\dfrac{1}{6}\right)^2-\left(\dfrac{1}{6}\right)^2=\dfrac{14}{3}$ $\left(y=-2\text{ and }y=\dfrac{7}{3}\right)$			M1ft dep on first M1 method to solve **their** 3 term quadratic using any correct method (allow one sign error and some simplification – allow as far as eg $\dfrac{-5\pm\sqrt{25+144}}{12}$ or $\dfrac{1\pm\sqrt{1+168}}{6}$ or if factorising allow brackets which expanded give 2 out of 3 terms correct) **or** correct values for x **or** correct values for y Accept ($x=$) 0.6(66..) rounded or truncated or ($y=$) 2.3(33…)
	$y=2\left("-\dfrac{3}{2}"\right)+1(=-2)$ **and** $y=2\left("\dfrac{2}{3}"\right)+1\left(=\dfrac{7}{3}\right)$	$-2=2x+1$ or $x=-\dfrac{3}{2}$ **and** $\dfrac{7}{3}=2x+1$ or $x=\dfrac{2}{3}$			M1ft dep on previous M1 for substituting **their** 2 found values of x or y into one of the two given equations **or** fully correct values for the other variable (correct labels for x / y)

			$\left(-\dfrac{3}{2},-2\right)$ $\left(\dfrac{2}{3},\dfrac{7}{3}\right)$	A1 oe dep on M2 allow $x=-1.5$, $y=-2$ $x=0.66(6…)$, $y=2.33(3…)$ truncated or rounded
	Working required			**Total 5 marks**

14	$\dfrac{-5-10}{4--2}\ (=-\dfrac{5}{2})$		6	M1	A correct method to find the gradient of AC
	$y-10=-\dfrac{5}{2}(x+2)$ oe eg $y=-\dfrac{5}{2}x+5$ or $y--5=-\dfrac{5}{2}(x-4)$ oe or $5x+2y=10$ oe			M1	ft (if M1 scored) correct equation of AC
	$y-4=\dfrac{2}{5}(x--\dfrac{27}{5})$ oe or $4=\dfrac{2}{5}\left(-\dfrac{27}{5}\right)+c\left(y=\dfrac{2}{5}x+6.16\right)$ $\dfrac{4-y}{-\frac{27}{5}-x}=\dfrac{2}{5}$ oe or $5y-2x=\dfrac{154}{5}$ oe			M1	ft (if first M1 scored) equation of BD or correct equation using gradient of BD
	solves $-\dfrac{5}{2}x+5=\dfrac{2}{5}x+6.16$ oe eg $\begin{array}{r}10x+\ \ 4y=20\\-10x+25y=154\end{array}$ oe, with operation of addition **or** $\begin{array}{r}25x+10y=50\\-4x+10y=61.6\end{array}$ oe, with operation of subtraction **or** $x=\dfrac{5}{2}y-\dfrac{154}{10}$ oe or $y=\dfrac{2}{5}x+\dfrac{154}{25}$ oe substituted in other equation			M1	Solve equation OR Solve simultaneously the correct equations of lines of AC and BD or correct equation from gradient or other correct equation. If elimination: same coefficient of x or y with suitable sign used to eliminate. If substitution: x or y substituted into other equation.
	Coordinates of intersection of AC and BD : $x=-\dfrac{2}{5}$, $y=6$			M1	oe value of x and y at intersection of AC and BD
	Correct answer scores full marks (unless from obvious incorrect working)	(4.6, 8)		A1	oe coordinates of D
	See next page for working with $AD=AB$, $CD=CB$ or gradients				**Total 6 marks**

14	eg $(10-4)^2+\left(-2+\dfrac{27}{5}\right)^2\ (=47.56)\ (AB=6.896\ldots)$ **or** eg $(-5-4)^2+(4+\dfrac{27}{5})^2(=169.36)\ (CB=13.013\ldots)$ **or** eg $\dfrac{-5-10}{4--2}$ **or** $\dfrac{4-y}{-\frac{27}{5}-x}$ oe		6	M1	A correct method to find AB^2 or CB^2 or AB or CB or a correct gradient expression for AC or DB
	eg $(y-10)^2+(x+2)^2=(10-4)^2+\left(-2+\dfrac{27}{5}\right)^2$ **or** eg $(y+5)^2+(x-4)^2=(-5-4)^2+(4+\dfrac{27}{5})^2$ **or** $\dfrac{-5-10}{4--2}\times\dfrac{4-y}{-\frac{27}{5}-x}=-1$ oe eg $-60+15y=6x+32.4$			M1	Using $D\ (x,y)$ form a correct equation $AD^2=AB^2$ **or** $CD^2=CB^2$ **or** gradients $AC\times DB=-1$ (Using $D\ (x,y)$)
	eg $2x-5y=-30.8$ **or** $x=2.5y-15.4$ **or** $y=0.4x+6.16$ oe			M1	uses rearrangement or solving simultaneous equations to find a correct 3 term linear equation
	eg $(y-10)^2+(2.5y-15.4+2)^2=(10-4)^2+\left(-2+\dfrac{27}{5}\right)^2$ eg $(0.4x+6.16+5)^2+(x-4)^2=(-5-4)^2+(4+\dfrac{27}{5})^2$			M1	uses substitution to obtain a correct quadratic equation in one unknown
	$7.25y^2-87y+232=0$ oe or $1.16x^2+0.928x-28.8144=0$ oe			M1	for a 3 term quadratic that can be used to find the value of x or the value of y at D
		(4.6, 8)		A1	oe coordinates of D
					Total 6 marks