Question			Answer	Marks	AO	Guidance	
6			**DR**				
			$3y+x=7 \Rightarrow m=-\frac{1}{3}$	**B1**	**2.1**		
			Gradient of line l through centre perpendicular to given tangent is 3	**B1 FT**	**1.2**	Correctly uses the result $m_1 m_2=-1$ for their m	
			Equation of l is $y+2=3(x-3)$	**M1***	**3.1a**	Correct equation of the form $y+2=M(x-3)$ with any non-zero M	
			$\left.\begin{array}{l} 3y+x=7 \\ y=3x-11 \end{array}\right\} x=4,\ y=1$	**M1dep***	**1.1**	Solves simultaneous equations to find point of intersection	**M0** if no working shown but allow following **M1** and **A1** if earned
			$r^2=(4-3)^2+(1+2)^2$	**M1**	**1.1**	Correct method to find distance (or distance squared) between centre and points of intersection	
			$(x-3)^2+(y+2)^2=10$	**A1**	**2.2a**	oe	
			Alternative solution				
			$(x-3)^2+(y+2)^2=r^2$	**B1**		Correct lhs of equation of circle	
			$r^2=(7-3y-3)^2+(y+2)^2$	**M1***		Substitutes given line into equation of circle	Any equivalent form
			$10y^2-20y+(20-r^2)=0$	**A1**		Correct equation in r and either x or y $\left(10x^2-80x+(250-9r^2)=0\right)$	Tidied form needed
			$(-20)^2-4(10)(20-r^2)$	**M1dep***		Correct use of the discriminant on their three-term quadratic in either x or y	
			$(-20)^2-4(10)(20-r^2)=0 \Rightarrow r^2=...$	**M1**		Set discriminant equal to zero and solve for r or r^2	
			$(x-3)^2+(y+2)^2=10$	**A1**		Correct rhs of equation of circle	
				[6]			