

Q	Marking instructions	AO	Marks	Typical solution
11(a)	Obtains correct gradient of L_1 PI by fully rearranged equation of L_1 Condone slip in $\frac{41}{7}$ term	1.1b	B1	$y = -\frac{1}{7}x + \frac{41}{7}$
	Uses perpendicular gradients rule on their gradient of L_1	1.1a	M1	Gradient of L_1 is $-\frac{1}{7}$ Gradient of radius is 7 Equation of radius is
	Completes reasoned argument to obtain given equation AG	2.1	R1	$(y - 5) = 7(x - 6)$ Equation of radius is $y = 7x - 37$
	Subtotal		3	

Q	Marking instructions	AO	Marks	Typical solution
11(b)	Obtains correct equation for radius through (0, 3)	1.1b	B1	Gradient of L_2 is 1 Gradient of radius is -1 Equation of radius is $y = -x + 3$
	Solves for $y = 7x - 37$ and their linear radius equation for L_2 to find the coordinates of their intersection of the radii	3.1a	M1	Radii intersect when $7x - 37 = -x + 3$ $x = 5, y = -2$
	Calculates distance from their centre to either contact point PI by $\sqrt{50}$ or $5\sqrt{2}$ or 50 seen in equation of C	1.1a	M1	Distance from (5, -2) to (0, 3) is $\sqrt{5^2 + 5^2} = \sqrt{50}$
	Obtains correct equation for C	2.1	R1	Equation of C is $(x - 5)^2 + (y + 2)^2 = 50$
	Subtotal		4	

	Question 11 Total		7	
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