

Question			Answer	Marks	AO	Guidance
8	(a)		$(x - 3)^2 + (y - 8)^2 [= 25]$	M1	1.1a	Attempt to complete the square for either x or y terms
			C is (3, 8)	A1	1.1	cao Ignore arithmetic slips on RHS
				[2]		
8	(b)		Intersects $y = x - 2$ when			
			$(x - 3)^2 + (x - 2 - 8)^2 = 25$	M1	3.1a	Substituting for y in equation of circle oe substitution for x
			$x^2 - 6x + 9 + x^2 - 20x + 100 - 25 = 0$			
			$2x^2 - 26x + 84 = 0$	M1	1.1	Simplifies to 3 term quadratic in x or y ($2y^2 - 18y + 40 = 0$)
			Giving $x = 6, 7$	A1	1.1	Both correct values seen
			So A and B are (6, 4) and (7, 5)	A1	1.1	Correct y-coordinates FT their x-coordinates Allow full credit for fully correct trial and improvement method
			Midpoints (4.5, 6) and (5, 6.5)	M1 A1	3.1a 1.1	Uses the midpoint formula at least once soi Both correct FT their A, B and C
			$A'B' = \sqrt{(5 - 4.5)^2 + (6.5 - 6)^2} = \frac{\sqrt{2}}{2}$	M1 A1	1.1a 1.1	Uses the distance formula for their A' and B' Must be exact. ISW if 0.71 also given
			Alternative for last 4 marks $AB = \sqrt{(7 - 6)^2 + (5 - 4)^2} = \sqrt{2}$ The triangle CA'B' is an enlargement scale factor $\frac{1}{2}$ of triangle CAB so $A'B' = \frac{1}{2}\sqrt{2}$	M1 A1 M1 A1		Uses the distance formula for their A and B FT their A and B Uses similar triangles or enlargement to find A'B' Must be exact ISW if 0.71 also given
				[8]		