

Question			Answer	Mark	AO	Guidance
5			DR Centre (0,1) and radius = 5 $x^2 + (y - 1)^2 = 25$	B1 M1	3.1a 1.1	Both soi (i.e. may be seen embedded in equation) FT their centre and radius. OR allow 5 instead of 25
			$(12 - 2y)^2 + (y - 1)^2 = 25$ or $x^2 + \left(6 - \frac{x}{2} - 1\right)^2 = 25$ or $x^2 + 25 - 5x + \frac{1}{4}x^2 = 25$ oe	M1	1.1	Substitute from line into their circle equation in any form to reach an equation in x or y only (substitution must be correct for this mark).
			$5y^2 - 50y + 120 = 0$ or $y^2 - 10y + 24 = 0$ or $\frac{5}{4}x^2 - 5x = 0$ oe	M1	1.1	Rearrange their quadratic to a 2- or 3-term quadratic = 0 (this mark may be implied by correct values for x or y i.e. either of the next two A marks). The = 0 may be implied by correct solutions to their quadratic. Condone one error in the terms.
			$y = 4$ or $y = 6$	A1	1.1	Both seen
			$x = 4$ or $x = 0$	A1	1.1	Both seen
			$AB^2 = (4 - 0)^2 + (6 - 4)^2 [= 20]$	M1	3.1a	FT their coordinates (must see this step oe)
			$AB = 2\sqrt{5}$ or $\sqrt{20}$	A1	1.1	From fully correct working (dep on all previous marks)
			Alternative method Centre C(0,1) and radius = 5 Perp from (0,1) to mid-pt of chord is $y = 2x + 1$ Solve $y = 2x + 1$ and $x + 2y = 12$ Meet at M(2,5) $CM = \sqrt{20}$ $AM = \sqrt{5^2 - 20} [= \sqrt{5}]$ $AB = 2\sqrt{5}$ or $\sqrt{20}$	B1 M1 A1 M1 A1 M1 A1		Both soi Attempt find equation of perpendicular Correct equation
						From fully correct working (dep on all previous marks)
				[8]		