

Topic Test 1 Mark Scheme

Equation of a circle - Higher

Q	Answer	Mark	Comments
1	$\sqrt{2}$	B1	
2	$x^2 + y^2 = 9$	B1	
3	Radius = 5	M1	
	$x^2 + y^2 = 25$	A1	
4	Gradient <i>OP</i> = $-\frac{1}{5}$	M1	
	Gradient tangent = 5	A1	
	$1 = 5 \times -5 + c$	M1	
	y = 5x + 26	A1	
5(a)	$(13 - 5y)^2 + y^2 = 13$	M1	
	$26y^2 - 130y + 156 = 0$ or $y^2 - 5y + 6 = 0$	A1	
	(y-2)(y-3) = 0	M1	
	(3, 2) and (–2, 3)	A1	
	$\sqrt{(3-2)^2+(2-3)^2}$	M1	
	$\sqrt{26}$	A1	
5(b)	Gradient AO = $\frac{-3}{2}$	M1	
	or Gradient OB = $\frac{2}{3}$		
	$\frac{-3}{2} \times \frac{2}{3} = -1$	A1	

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Q	Answer	Mark	Comments
	$x^2 + (-3x + 10)^2 = 10$	M1	
6	$10x^{2} - 60y + 90 = 0$ or $x^{2} - 6x + 9 = 0$	A1	
	(x-3)(x-3) = 0	M1	
	Single point of intersection so tangent	A1	