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 $OP = -\dfrac{1}{5}$	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	
	$\sqrt{\left(3 - -2\right)^2 + \left(2 - 3\right)^2}$	M1	
	$\sqrt{26}$	A1	
5(b)	Gradient AO = $\dfrac{-3}{2}$ or Gradient OB = $\dfrac{2}{3}$	M1	
	$\dfrac{-3}{2} \times \dfrac{2}{3} = -1$	A1	

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