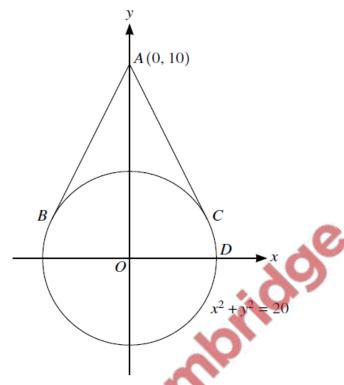
## Coordinate Geometry – 2022 AS Nov

1. Nov/2022/Paper\_9709\_11/No.11



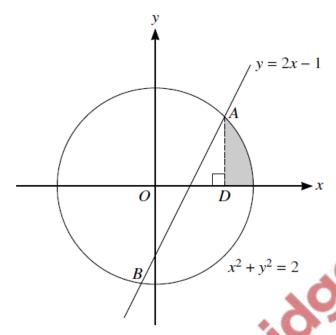
The diagram shows the circle with equation  $x^2 + y^2 = 20$ . Tangents touching the circle at points B and C pass through the point A(0, 10).

By letting the equation of a tangent be $y = mx + 10$ , find the two possible values of $m$ .	
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<b>(b)</b>	Find the coordinates of $B$ and $C$ .	[3]
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The	e point $D$ is where the circle crosses the positive $x$ -axis.	
(c)	Find angle <i>BDC</i> in degrees.	[3]

2. Nov Poi	Nov/2022/Paper_9709_12/No.1 Points $A$ and $B$ have coordinates (5, 2) and (10, -1) respectively.			
(a)	) Find the equation of the perpendicular bisector of $AB$ .	[3]		
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	.0,			
	20			
		••••••		
<b>(b)</b>	Find the equation of the circle with centre $A$ which passes through $B$ .	[3]		
		•••••		
		••••••		

**3.** Nov/2022/Paper\_9709\_13/No.10



The diagram shows the circle  $x^2 + y^2 = 2$  and the straight line y = 2x - 1 intersecting at the points A and B. The point D on the x-axis is such that AD is perpendicular to the x-axis.

(a)	Find the coordinates of <i>A</i> .	[4]	]
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	18.		

<b>(b)</b>	Find the volume of revolution when the shaded region is rotated through $360^{\circ}$ about the x-axis.		
	Give your answer in the form $\frac{\pi}{a}(b\sqrt{c}-d)$ , where a, b, c and d are integers.	[4]	
(c)	Find an exact expression for the perimeter of the shaded region.	[2]	

4.	Nov/2022/Paper_9709_13/No.11 The coordinates of points $A$ , $B$ and $C$ are $A$ (5, $-2$ ), $B$ (10, 3) and $C$ (2 $p$ , $p$ ), where $p$ is a constant.		
	(a)	Given that $AC$ and $BC$ are equal in length, find the value of the fraction $p$ .	[3]
		<b>10</b>	
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	(b)	It is now given instead that $AC$ is perpendicular to $BC$ and that $p$ is an integer.	
	(0)	(i) Find the value of $p$ .	[4]

ii)	Find the equation of the circle which passes through $A$ , $B$ and $C$ , giving your answer in the form $x^2 + y^2 + ax + by + c = 0$ , where $a$ , $b$ and $c$ are constants. [4]