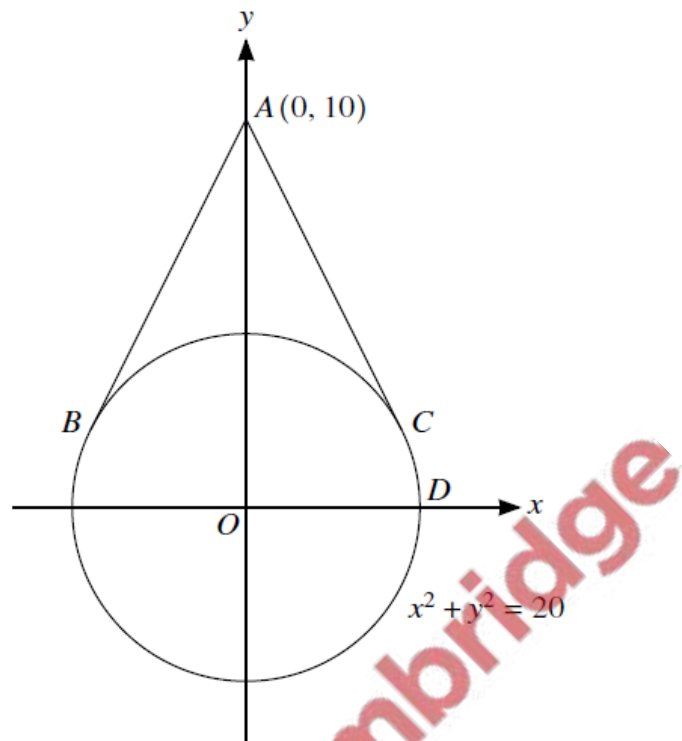


1. Nov/2022/Paper_9709_11/No.11



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 $A(0, 10)$.

- (a) By letting the equation of a tangent be $y = mx + 10$, find the two possible values of m . [4]

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(b) Find the coordinates of B and C .

[3]

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The point D is where the circle crosses the positive x -axis.

(c) Find angle BDC in degrees.

[3]

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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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- (b) Find the equation of the circle with centre A which passes through B . [3]

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- (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]

