

Circles - Class XI

Past Year JEE Questions

Questions

Question: 01

Choose the correct statement about two circles whose equations are given below :

$$x^2 + y^2 - 10x - 10y + 41 = 0$$

$$x^2 + y^2 - 22x - 10y + 137 = 0$$

- A. circles have same centre
 - B. circles have no meeting point
 - C. circles have only one meeting point
 - D. circles have two meeting points
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Solutions

Solution: 01

Explanation

Let $S_1 : x^2 + y^2 - 10x - 10y + 41 = 0$

$$\Rightarrow (x - 5)^2 + (y - 5)^2 = 9$$

Centre $(C_1) = (5, 5)$

Radius $r_1 = 3$

$S_2 : x^2 + y^2 - 22x - 10y + 137 = 0$

$$\Rightarrow (x - 11)^2 + (y - 5)^2 = 9$$

Centre $(C_2) = (11, 5)$

Radius $r_2 = 3$

$$\text{distance } (C_1C_2) = \sqrt{(5 - 11)^2 + (5 - 5)^2}$$

$$\text{distance } (C_1C_2) = 6$$

$$\therefore r_1 + r_2 = 3 + 3 = 6$$

\therefore circles touch externally

Hence, circle have only one meeting point.