Related Questions with Solutions

Questions

Quetion: 01

The number of direct common tangents that can be drawn to the circles $x^2 + y^2 + 4x - 6y - 12 = 0$ and $x^2 + y^2 - 8x + 10y + 16 = 0$ is

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Solutions

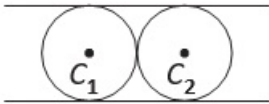---

Solution: 01

Given circle $x^2 + y^2 + 4x - 6y - 12 = 0$
$\Rightarrow \quad (x+2)^2 + (y-3)^2 = 5^2$
$\Rightarrow c_1(-2,3)$ and $r_1 = 5$
Again $x^2 + y^2 - 8x + 10y + 16 = 0$
$\Rightarrow \quad (x-4)^2 + (y+5)^2 = 5^2$
$\Rightarrow c_2(4,-5)$ and $r_2 = 5$

$\therefore \quad r_1 + r_2 = 10$ and $c_1 c_2 = \sqrt{(4+2)^2 + (5+3)^2}$
$= \sqrt{36 + 64}$
$c_1 c_2 = 10$
As $c_1 c_2 = 10 = r_1 + r_2$
$\Rightarrow$ Number of tangents are 3 out of which 2 tangents are direct tangents and 1 tangent is transversal.

Correct Options

Answer:01
Correct Answer: 2