Questions

Quetion: 01

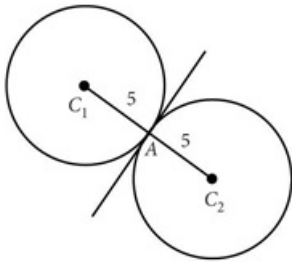Two circles each of radius 5, have a common tangent at (1, 1) whose equation is 4x + 3y – 7 = 0. The centres are

A. (–4, 4), (6, 2)

B. (–3, 4), (5, –2)

C. (5, 4), (–3, –2)

D. (4, 2), (–2, 0)

Solutions

Solution: 01
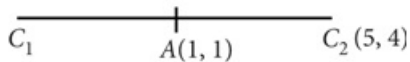
$A(1,1).$ The slope of tangent is $\dfrac{-4}{3}.$

The slope of line of centres

C_1C_2 is $\dfrac{3}{4} = \tan\theta,$ [say]

A centre is $(1 + 5\cos\theta, 1 + 5\sin\theta) = (5, 4)$

$$\left[\because \quad \cos\theta = \frac{4}{5}, \sin\theta = \frac{3}{5}\right]$$

$(1,1)$ is the midpoint of C_1C_2 $\therefore C_1 \equiv (-3,-2).$

The centres are [–3, –2] and [5, 4].

Correct Options

Answer:01

Correct Options: C