Tanget to a given circle

We have 2 tangets to a circle

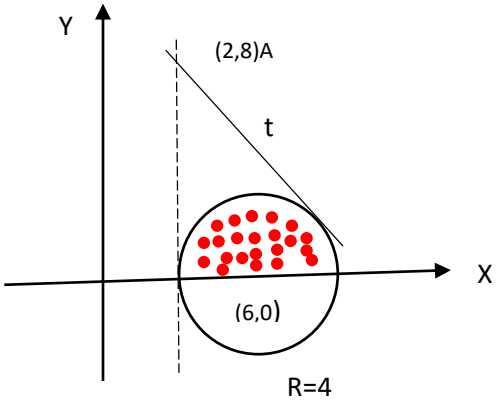
$(x-6)^2 + y^2 = 16$

K(6,0) is the center R = 4

We can write the equation $x^2 + y^2 - 12x + 20 = 0$

$t^2 = 2^2 + 8^2 - 12.\ 2 + 20$

$t = 8$



The tangets meets at A (2,8)

$y - 8 = a(x - 2)$, a = ?

$ax - y - 2a + 8 = 0$

the center is (6,0) $\frac{ax-y-2a+8}{\sqrt{a^2+1}} = 0$

$\frac{6a-0-2a+8}{\sqrt{a^2+1}} = 4$

$\Rightarrow 4a + 8 = 4\sqrt{a^2+1}$

$\Rightarrow \quad a + 2 = \sqrt{a^2+1}$

$(a+2)^2 = a^2 + 1$

$a^2 + 4a + 4 = a^2 + 1$

$4a = -3$, $a = \frac{-3}{4}$ $A\ (2,8)$

$y - 8 = \frac{-3}{4}(x-2)$

$y = \frac{-3}{4}x + 9\frac{1}{2}$

The second Tanget is x = 2