

16. A circle has centre $(3, 5)$ and touches the line $y = 2x + 4$.
- Find the length of the radius of the circle.
 - Find the equation of the circle.
 - Find the equation of the tangent to the circle at the point $(1, 4)$.

Radius?

$$d = \frac{|ax_1 + by_1 + c|}{\sqrt{a^2 + b^2}}$$

circle?

$$(x-h)^2 + (y-k)^2 = r^2$$

tangent at $(1, 4)$? L :

$$y - y_1 = m(x - x_1)$$

$$m_L \perp m_{[CT]}$$

$$m = \frac{y - y_1}{x - x_1} \quad \text{Tangent}$$

