



$$x^2 + y^2 = 34$$

Find eqn of tangent  
at  $A(5,3)$

$$\text{Gradient } OA = \frac{y_2 - y_1}{x_2 - x_1} = \frac{3 - 0}{5 - 0} = \frac{3}{5}$$

$$\Rightarrow \text{Gradient of tangent} = -\frac{5}{3}$$

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

$$y - 3 = -\frac{5}{3}(x - 5)$$

$$y - 3 = -\frac{5}{3}x + \frac{25}{3}$$

$$y = -\frac{5}{3}x + \frac{25}{3} + \frac{9}{3}$$

$$y = -\frac{5}{3}x + \frac{34}{3}$$

$$y = mx + c$$

$$ax + by + c = 0$$

$$3y = -5x + 34$$

$$5x + 3y - 34 = 0$$

Exercise

- 1) Find eqn of tnt to  $x^2 + y^2 = 53$  at  $(-7, 2)$   
in form  $y = mx + c$
- 2) Find eqn of tnt to  $x^2 + y^2 = 50$  at  $(7, -1)$   
in form  $ax + by + c = 0$       $a, b, c$  integers

Solutions

$$1) y = \frac{7}{2}x + \frac{53}{2}$$

$$2) -7x + y + 50 = 0$$

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