

6
7
8
NAME: SURE MURARIK A
DEPT: CIVIL ENGINEERING
MAT. NO.: 18/EM903/055
ENG 281 - ENGINEERING M

i) Find the angle between
at the point of intersection

$$5x^2 + y^2 = 5 \quad \text{--- (i)}$$

$$x^2 + y^2 = 4 \quad \text{--- (ii)}$$

From eq (ii)

$$y^2 = 4 - x^2 \quad \text{--- (iii)}$$

Substitute eq (iii) in (i)

$$5x^2 + 4 - x^2 = 5$$

$$4x^2 = 5 - 4$$

$$4x^2 = 1$$

$$x^2 = \frac{1}{4}$$

$$x = \sqrt{\frac{1}{4}}$$

$$x = \frac{1}{2}$$

Substitute x into eq (iii)

$$y^2 = 4 - \left(\frac{1}{2}\right)^2$$

$$y^2 = 4 - \frac{1}{4}$$

$$y^2 = \frac{15}{4}$$

$$y = 1.936$$

NS For tangent:

$$\frac{dy}{dx} = \tan \theta$$

in $5x^2 + y^2 = 5$

$$10x + 2y \frac{dy}{dx} = 0$$

$$2y \frac{dy}{dx} = -10x$$

$$\frac{dy}{dx} = -\frac{10x}{2y}$$

$$= -\frac{10(0.5)}{2(1.936)}$$

$$\frac{dy}{dx} = -1.29$$

