

4) KETRIJOLU MURAH  
ELECT / ELECT

18/EN1404/1009

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

$$x^2 + y^2 = 4$$

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

$$-2x^2 + y^2 = 1$$

$$4x^2 = -1$$

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

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

sol 2 for by in eq (1)

$$5\left(\frac{1}{2}\right)^2 + y^2 = 5$$

$$\frac{5}{4} + y^2 = 5$$

$$y^2 = 5 - \frac{5}{4} = \frac{20-5}{4} = \frac{15}{4}$$

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

Differentiate eq (1)

$$5x^2 - y^2 = 5$$

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

$$\frac{5y \frac{dy}{dx}}{xy} = -\frac{10x}{2y}$$

$$\frac{dy}{dx} = -\frac{5x}{y}$$

$$\frac{dy}{dx} = -\frac{5\left(\frac{1}{2}\right)}{\frac{\sqrt{15}}{2}}$$

$$= -1.241$$

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

$$\theta = \tan^{-1} \frac{dy}{dx}$$

$$\theta = \tan^{-1} (-1.241)$$

$$= 52.239^\circ$$

Differentiate 2

$$x^2 + y^2 = 4$$

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

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

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

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

$$\frac{dy}{dx} = -\frac{(1/2)}{\sqrt{15}/2} = -0.25$$

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

$$\theta = \tan^{-1} \frac{dy}{dx}$$

$$\theta = \tan^{-1} (-0.258)$$

$$\theta = -14.4775$$

$$\theta_2 - \theta_1 = -52.239 + 14.4$$

$$= -37.7615^\circ$$

