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$$5x^2 + y^2 = 5 \text{ --- eqn (1)}$$

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

Solw

Solving the eqn using elimination method.

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

$$- \underline{x^2 + y^2 = 4}$$

$$4x^2 = 1$$

$$x^2 = 1/4$$

$$\therefore x = \pm \sqrt{1/4}$$

$$\therefore x = \pm 1/2 \rightarrow x_1 = 1/2 \text{ or } x_2 = -1/2$$

Substitute values of x into eqn (2).

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

$$(1/2)^2 + y^2 = 4$$

$$y^2 = 4 - 0.25$$

$$y^2 = 3.75$$

$$y = \sqrt{3.75} \Rightarrow \pm 1.94$$

$$\therefore y_1 = 1.94, y_2 = -1.94$$

finding the derivative (dy/dx) of eqn (1)

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

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

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

Divide through by 2y

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

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

$$\tan \theta = dy/dx$$

$$\tan \theta_1 = dy/dx$$

$$\theta_1 = \tan^{-1} (dy/dx)$$

$$\therefore \theta_1 = -52.22$$

finding dy/dx of eqn (6).

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

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

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

Divide through by $2y$

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

$$= -0.26.$$

$$= -0.26.$$

$$\tan \theta_2 = dy/dx$$

$$\tan \theta_2 = -0.26$$

$$\theta_2 = \tan^{-1} (-0.26).$$

$$\theta_2 = -14.57^\circ$$

$$\theta = \theta_2 - \theta_1$$

$$= 14.57 - [-52.22]$$

$$= -14.57 + 52.22$$

$$\therefore \theta = \underline{37.65^\circ}$$

100% ?

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Arial

$$f(x) := \sqrt{5 - 5x^2}$$

$$g(x) := \sqrt{4 - x^2}$$

