

$$f(x) := \sqrt{5 - 5x^2} \qquad g(x) := \sqrt{4 - x^2}$$





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1)  $5x^2 + y^2 = 5$  ... ①

$x^2 + y^2 = 4$  ... ②

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

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

$x = \pm \sqrt{\frac{1}{4}} = \pm 0.5$

taking the two values

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

$5(0.5)^2 + y^2 = 5$

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

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

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

$= \pm 1.93$

$\therefore y = 1.93 \quad x = 0.5$

Find  $\frac{dy}{dx}$  of eqn ① and ②

1)  $5x^2 + y^2 = 5$

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

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

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

Sub the values for x and y

$-10 \frac{x}{2y} = -1.295$

$\frac{-2x}{2y} = -0.25$

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

$\therefore \theta = \tan^{-1} \left( \frac{dy}{dx} \right)$

$\theta_1 = \tan^{-1}(-1.295) = -52.32$

$\theta_2 = \tan^{-1}(-0.25) = -14.52$

$\therefore \theta = |\theta_1 - \theta_2| = |52.32 - (-14.52)| = 37.8$