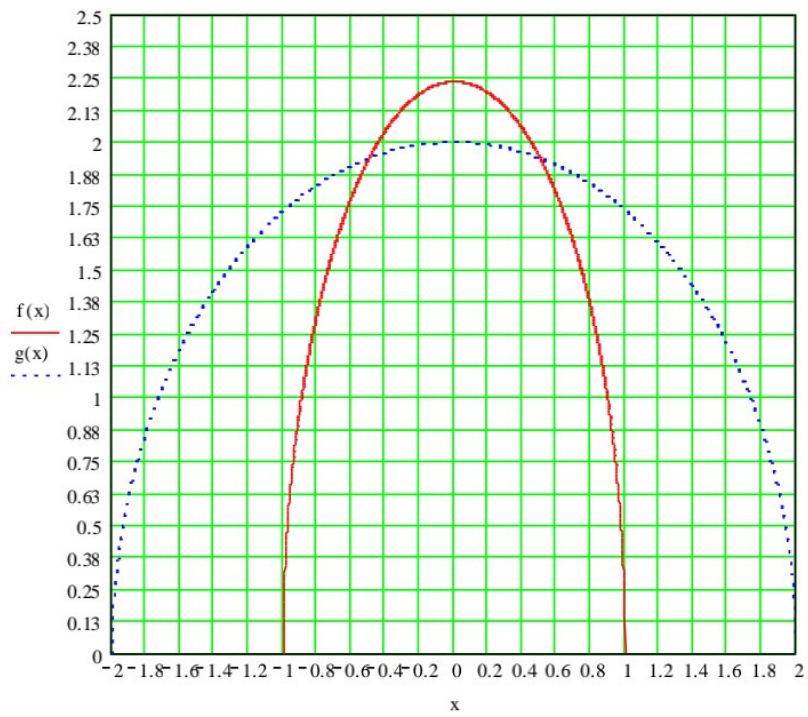


$$f(x) := \sqrt{5 - 5x^2}$$

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



NAME: JOHN-UGWU NNCOMA FAVOUR.

MATRIC NO: 18/ENG 021052

DEPT: COMPUTER ENGINEERING

$$5x^2 + y^2 = 5 \text{ --- eqn ①}$$

$$x^2 + y^2 = 4 \text{ --- eqn ②}$$

solve simultaneously;

$$5x^2 + y^2 = 5 \text{} \times ①$$

$$x^2 + y^2 = 4 \text{} \times ⑤$$

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

$$5x^2 + 5y^2 = 20$$

$$-4y^2 = -15$$

$$y^2 = \sqrt{3.75}$$

$$y = 1.93$$

Substitute the value of y in eqn ②

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

$$x^2 + 1.93^2 = 4$$

$$x^2 = 4 - 1.93^2$$

$$x^2 = 0.2751$$

$$x = \sqrt{0.2751}$$

$$x = 0.52$$

Finding $\frac{dy}{dx}$: $5x^2 + y^2 = 5$

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

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

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

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

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

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

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

For both values are positive

$$\theta_2 \Rightarrow \frac{5x}{y} = \frac{5(0.52)}{1.93}$$

$$\frac{dy}{dx} = \tan \theta \Rightarrow \tan^{-1}\left(\frac{5(0.52)}{1.93}\right)$$

$$\theta_2 = 53.4^\circ$$

$$\theta_1 \Rightarrow \frac{x}{y} = \frac{0.52}{1.93}$$

$$\frac{dy}{dx} = \tan \theta = \tan^{-1}\left(\frac{0.52}{1.93}\right)$$

$$\theta_1 = 14.7^\circ$$

$$\therefore \theta_1 = 14.7^\circ \text{ and } \theta_2 = 53.4^\circ$$