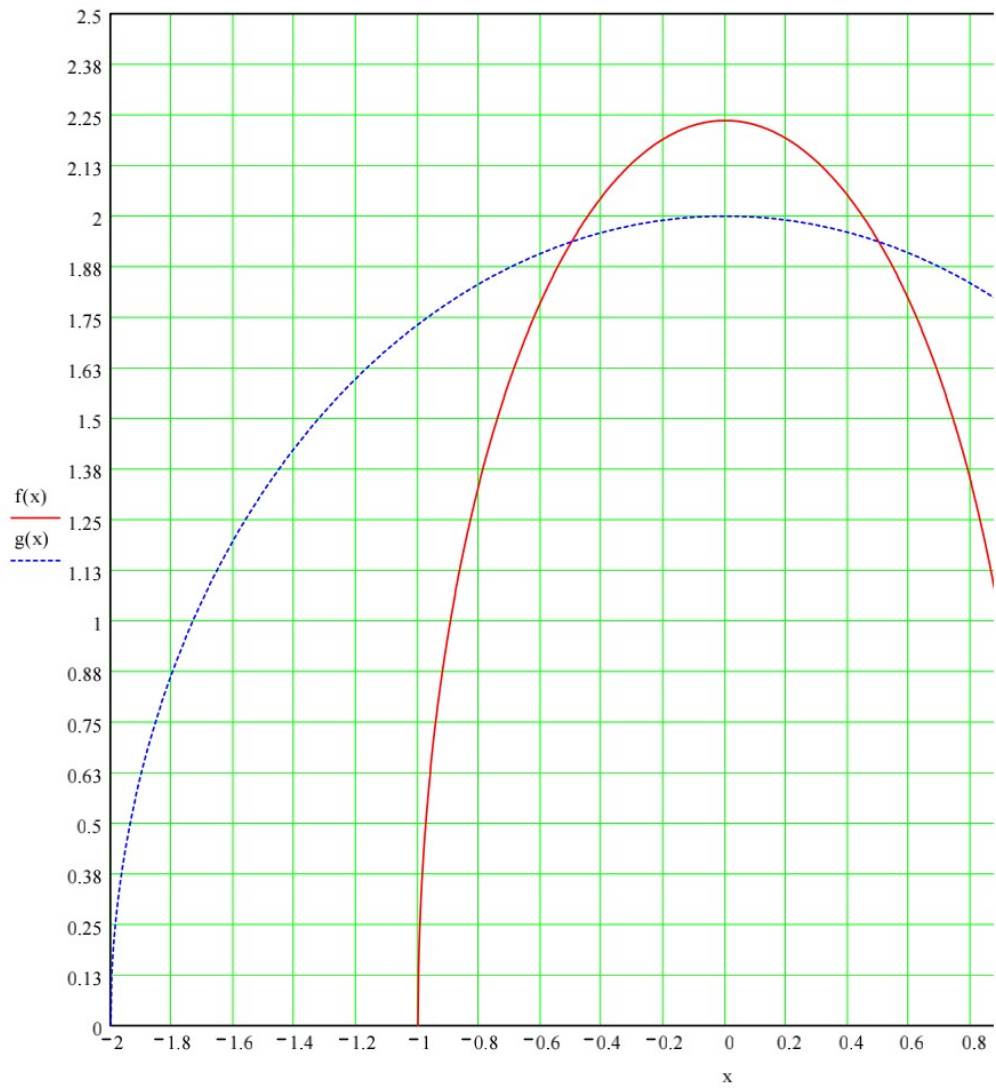
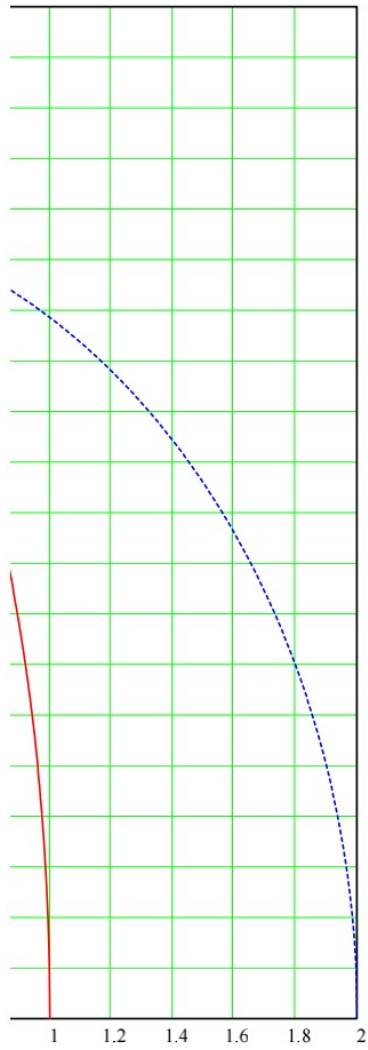


$$f(x) := \sqrt{5 - 5x^2}$$

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





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Soln

To calculate the angle between them,

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

$$y^2 = 5 - 5x^2 \quad ; \quad y^2 = 4 - x^2$$

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

$$4x^2 - 1 = 0$$

$x_1 = 0.39$	$x_1 = 0.5$	y
$x_2 = -0.64$	$x_2 = -0.5$	

hence $y_1 = y_2 = \sqrt{4 - x^2}$
 $= \sqrt{4 - (0.5)^2} = \frac{\sqrt{15}}{2}$

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

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

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

$$\frac{dy}{dx} \text{ [for } \theta \text{]} = \frac{-5x^2}{y}$$

$$y^2 = 4 - x^2$$

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

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

$$\frac{dy}{dx} \text{ [for } \theta \text{]} = \frac{-x}{y}$$

Hence

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

$$= \tan^{-1} \left(\frac{-5(0.5)}{\frac{\sqrt{15}}{2}} \right)$$

$$= -52.24$$

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

$$= \tan^{-1} \left(\frac{-0.5}{\frac{\sqrt{15}}{2}} \right)$$

$$= -14.48$$

$$\theta = \theta_{\text{for } \theta} - \theta_{\text{for } \theta}$$

$$= -14.48 - (-52.24)$$

$$= 37.76^\circ$$