Mathcad Professional - [Untitled:1]

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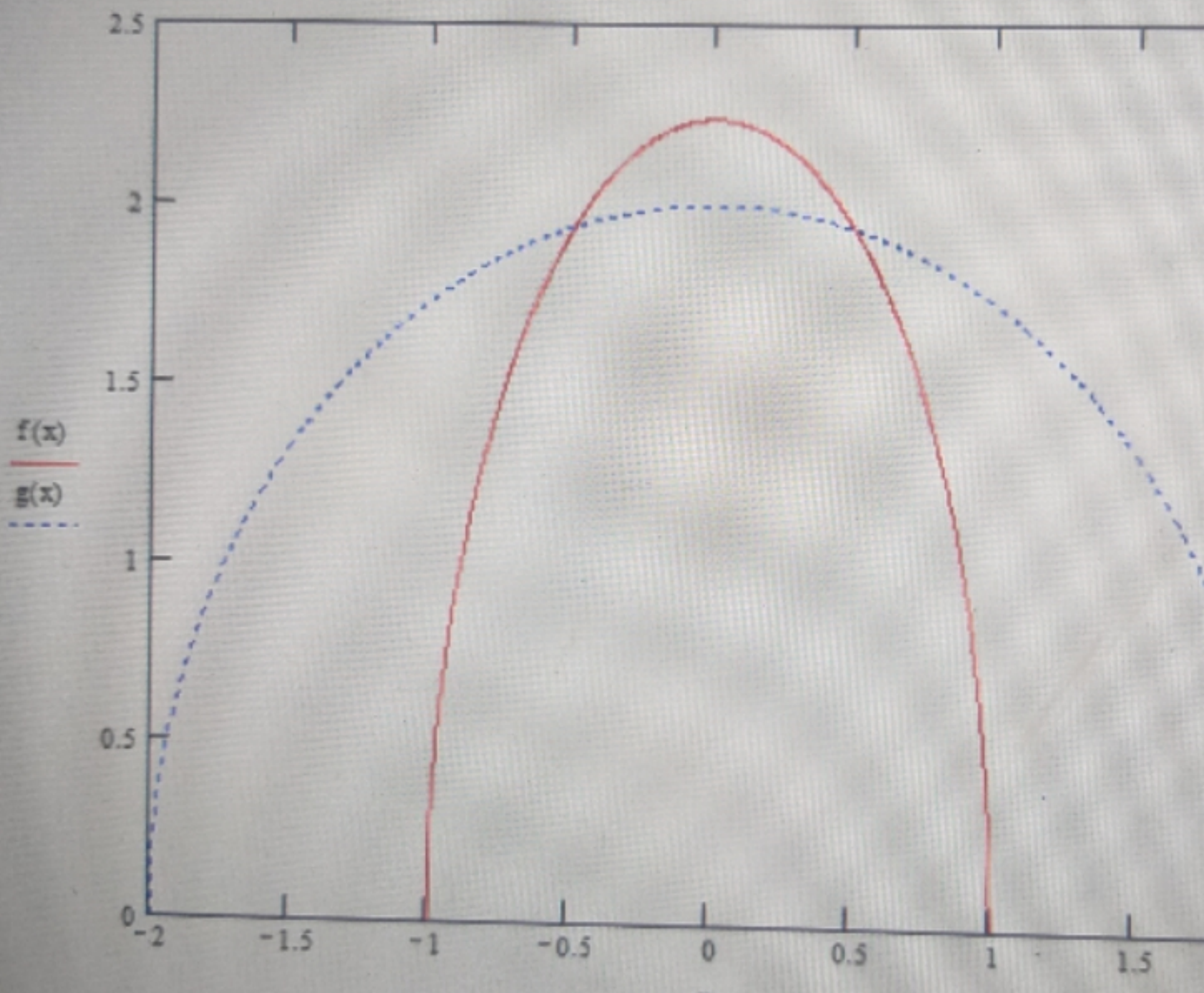
Constants | Times New Roman | 10 | B I U

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

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



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Angle between $5x^2 + y^2 = 5$, $x^2 + y^2 = 4$.

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

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

$$1 = 4x^2$$

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

$$x_1 = 1/2 \qquad x_2 = -1/2$$

$$y_1^2 = 5 - 5x^2$$

$$y_1 = \sqrt{5 - 5x^2}$$

$$\therefore y_1 = \sqrt{5 - 5(1/2)^2}$$

$$y_1 = 1.94_{11}$$

$$y_2 = \sqrt{5 - 5(-1/2)^2}$$

$$= 1.94_{11}$$

$$10x + 2y\, dy/dx = 0$$

$$dy/dx = -10x/2y$$

$$dy/dx = \frac{-10(0.5)}{2(1.94)}$$

$$dy/dx = -1.29$$

$$\therefore \theta_1 = \tan^{-1}(-1.29)$$

$$\theta_1 = -52.22^\circ$$

$$2x + 2y\, dy/dx = 0$$

$$dy/dx = -2x/2y$$

$$dy/dx = \frac{-2(0.5)}{2(1.94)}$$

$$= -0.26$$

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

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

The total angle $= \theta_2 - \theta_1$

$$= -14.57^\circ - (-52.22)$$

$$= 37.65_{11}$$