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18/ENG04/054
Electrical/Electronics

1) $5x^2 + y^2 = 5$
$x^2 + y^2 = 4$

elimination

$4x^2 = 1$
$x^2 = 1/4$
$x = \pm\sqrt{1/4} = \pm 0.5$

$5x^2 + y^2 = 5$
$5(0.5)^2 + y^2 = 5$
$5/4 + y^2 = 5$
$y^2 = 5 - 5/4$
$y = \pm\sqrt{15/4}$
$= \pm 1.93$
$\therefore y = 1.93 \quad x = 0.5$

Find dy/dx of eqn(1) and ②

1) $5x^2 + y^2 = 5$
$dy/dx = -10x/2y$

2) $x^2 + y^2 = 4$
$dy/dx = \frac{-2x}{2y}$

Substituting the Value of x and y

$-10x/2y = -1.295$

$-2x/2y = -0.25$

Since $dy/dx = \tan\theta$
$\therefore \theta = \tan^{-1}(dy/dx)$

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

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

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

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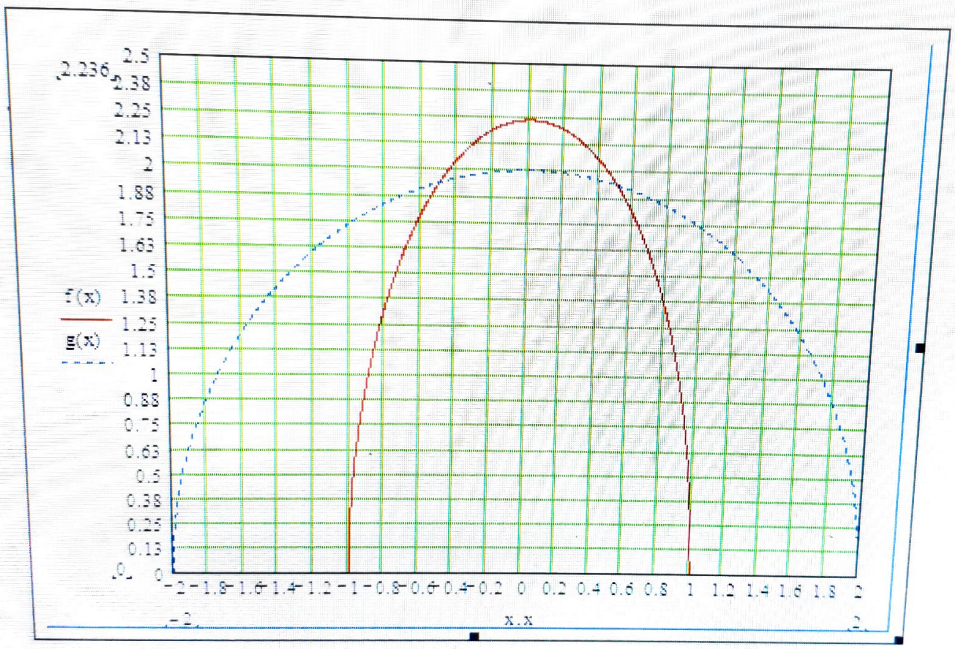
$f(x) := \sqrt{5 - 5x^2}$ $\quad g(x) := \sqrt{4 - x^2}$



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