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

Solution

$y^2 = 5x^2 - 5$ ... (i)
$x^2 + y^2 = 1$ ... (ii)

substitute y^2 (i) into eqn (ii)

$x^2 + (5 - 5x^2) = 4$
$x^2 - 5x^2 + 5 = 4$
$-4x^2 + 5 - 4 = 0$
$-4x^2 + 1 = 0$

multiply both sides by -1
$4x^2 - 1 = 0$
$x = +0.5, -0.5$

sub x in equation (i)

$y^2 = 5 - 5(0.5)^2$
$y = \sqrt{15}/2$

Differentiating $5x^2 + y^2 = 5$
$\Rightarrow 10x + 2y\, dy/dx = 0$
$dy/dx = \frac{-10x}{y} = \frac{-5x}{y}$

Differentiating $x^2 + y^2 = 4$
$\Rightarrow 2x + 2y\, dy/dx = 0$
$dy/dx = -2x/2y = -x/y$

at $x = 0.5$, $y =$
$-5x/y = -5(0.5)/\sqrt{5}/2 = -\sqrt{5}/2$

at $x = -1/2$ $y = \sqrt{15}/2$
$-5x/y \Rightarrow 5/(0.5)/\sqrt{15}/2 = \sqrt{15}/3$

at $x = 1/2$, $y = \sqrt{15}/2$
$-x/y \Rightarrow 0.5/\sqrt{5}/2 = -\sqrt{15}/15$

at $x = -1/2$, $y = \sqrt{15}/2$
$= x/y = 1/\sqrt{5}/1 = \sqrt{15}/15$

$\tan(\theta_2 - \theta_1) = \frac{m_2 - m_1}{1 + m_2 m_1}$

when $m_2 = \sqrt{15}/3$, $m_1 = +\sqrt{0}/5$

$\tan(\theta_2 - \theta_1 = \frac{\sqrt{15}/10 - \sqrt{15}/}{0 + (\sqrt{15}/10)(\sqrt{0}/0)}$

$\tan^{-1}(\sqrt{15}/5) = -37.712$

the angle between them
$180 - 37.76 = 142.24^0$.

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