

الف) $xy^2 + x^2 + 1 = 0$

$xy^2 = -x^2 - 1 \rightarrow y^2 = \frac{-x^2 - 1}{x}$

$x_1 = x_2 \rightarrow y_1^2 = \frac{-x_1^2 - 1}{x_1} \quad \frac{-x_2^2 - 1}{x_2} = \frac{-x_1^2 - 1}{x_1}$

$y_1^2 = \frac{-x_1^2 - 1}{x_1} \quad y_2^2 = \frac{-x_2^2 - 1}{x_2}$

$y_1^2 = y_2^2 \rightarrow y_1 = y_2$ (نقطه نقطه)

ب) $x^2 + 4y^2 - 2x - 12y + 1 = 0$

$(x-1)^2 + (y-3)^2 = 0$

$(x-1)^2 = 0 \quad (y-3)^2 = 0$

$x=1 \quad y=3$ (نقطه نقطه)

الف) $m \sin y = y \sin m$

$m=0 \rightarrow 0 = y \sin 0$

$y=0$ (نقطه نقطه)

ب) $\sqrt{\frac{m}{y}} + \sqrt{\frac{y}{m}} = 2$

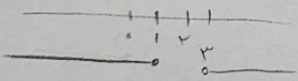
$m_1 = m_2 \rightarrow \sqrt{\frac{m_1}{y_1}} + \sqrt{\frac{y_1}{m_1}} = \sqrt{\frac{m_2}{y_2}} + \sqrt{\frac{y_2}{m_2}} = 2$

$y_1 = y_2$ (نقطه نقطه)

الف) $y = \sqrt{\frac{m-1}{m-3}} + \sqrt{\frac{3-m}{m}}$

$\frac{1}{2} + \frac{3}{2} = 2$

$(-\infty, 1] \cup (3, +\infty) \cap (1, 3] = (1, 1) = \emptyset$



ب) $\sqrt{m} + \sqrt{y-1} = \sqrt{3}$

$\sqrt{y-1} = \sqrt{3} - \sqrt{m}$

$\sqrt{3} > \sqrt{m} \rightarrow m < 3$

$D_F = [0, 3]$

الف) $y = \sqrt{x^2 - 5x + 4} \geq (x-1)(x-4)$

$-4x + 4 \geq 14 > 4x \rightarrow \frac{14}{9} > x$

$D_F = (-\infty, 1]$

ب) $y = \sqrt{\frac{x^2 - 5x + 4}{x^2 - 14x + 49}} = \sqrt{\frac{(x-1)(x-4)}{(x-7)^2}}$

$D_F = (-\infty, 1] \cup (3, 4] \cup (7, +\infty)$

الف) $y = \sqrt{\frac{x^2 - 5x + 4}{x^2 - 14x + 49}}$

$D_F = (-\infty, 1] \cup [\frac{4}{3}, +\infty)$

ب) $y = \sqrt{\frac{x^2 - 5x + 4}{x^2 - 14x + 49}}$

$D_F = (-\infty, 1] \cup (1, \frac{4}{3}) \cup [\frac{4}{3}, +\infty)$