

الف) $x^2 - 4x + 4 = 0 \rightarrow \Delta = 16 - 16 = 0 \rightarrow x_1 = x_2 = 2$

ب) $x^2 + 8x + 7 = 0 \rightarrow \Delta = 64 - 28 = 36 \rightarrow x_1 = -1, x_2 = -7$

الف) $x^2 - 5x + 4 = 0 \rightarrow \Delta = 25 - 16 = 9 \rightarrow x_1 = 1, x_2 = 4$

ب) $x^2 - 5x - 14 = 0 \rightarrow \Delta = 25 + 92 = 117 \rightarrow x_1 = 7, x_2 = -2$

الف) $x^2 - 2x - 2 = 0 \rightarrow \Delta = 4 + 8 = 12 \rightarrow x_1 = 1 + \sqrt{3}, x_2 = 1 - \sqrt{3}$

ب) $x^2 - 2x + 2 = 0 \rightarrow \Delta = 4 - 8 = -4 \rightarrow x_1 = 1 + i, x_2 = 1 - i$

الف) $2x^2 + x - 2 = 0 \rightarrow \Delta = 1 + 16 = 17 \rightarrow x_1 = \frac{-1 + \sqrt{17}}{4}, x_2 = \frac{-1 - \sqrt{17}}{4}$

الف) $3x^2 - 12x + 9 = 0 \rightarrow \Delta = 144 - 108 = 36 \rightarrow x_1 = 1, x_2 = 3$

ب) $3x^2 - 10x + 3 = 0 \rightarrow \Delta = 100 - 36 = 64 \rightarrow x_1 = \frac{1}{3}, x_2 = 3$

$$2m^2 + am - 1 = 0 \Rightarrow \Delta = 10 - 14 = -4 < 0 \Rightarrow \Rightarrow 7 \text{ جواب}$$

$$2m^2 - m + 2 = 0 \Rightarrow \Delta = 1 - 16 = -15 < 0 \Rightarrow \Rightarrow X \text{ فاقد جواب حقيقي}$$

$$2m^2 - 2m + 2 = 0 \Rightarrow \Delta = 4 - 16 = -12 < 0 \Rightarrow \Rightarrow 0 \text{ جواب}$$

$$2m^2 - m + 1 = 0 \Rightarrow \Delta = 1 - 8 = -7 < 0 \Rightarrow \Rightarrow X \text{ فاقد جواب حقيقي}$$

(2) ✓

$$2m^2 - 2m + a = 0$$

$$\Delta = b^2 - 4ac \Rightarrow 4 - 4a$$

$$1) 4 - 4a > 0 \Rightarrow a < 1$$

$$2) 4 - 4a \geq 0 \Rightarrow a \leq 1$$

$$3) 4 - 4a = 0 \Rightarrow a = 1$$

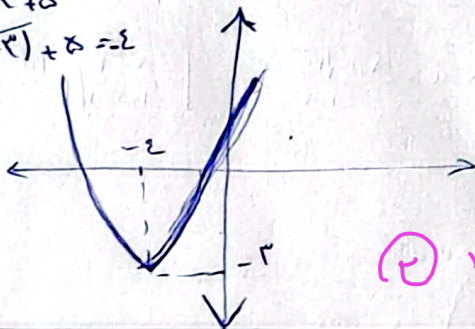
(3) ✓

$$4) 4 - 4a < 0 \Rightarrow a > 1$$

$$y = x^2 + 4x + a$$

$$\text{min} \left| -\frac{4}{2} \right| = -2 \Rightarrow (-2)^2 + 4(-2) + a = -2$$

$$\text{نقطه: } (-2, 0), (-2, -2), (-2, -4), (-2, -6), (-2, -8), \dots$$



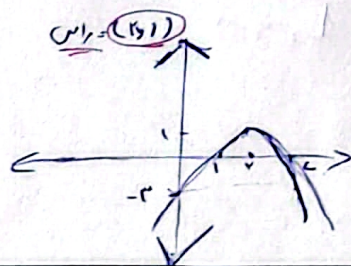
(4) ✓

$$y = -x^2 + 2x - 3$$

$$\text{max} \left| \frac{2}{2} \right| = 1$$

$$y_{\text{min}} = \frac{-2}{2(-1)} = 1$$

$$y_{\text{max}} = \frac{4}{4} - 3 = -2$$



(5) ✓

$$y = 0$$

$$-x^2 + 2x - 3 = 0$$

$$x^2 - 2x + 3 = 0$$

$$(x-1)(x-3) = 0$$

$$x = 1$$

$$x = 3$$

9

$$m^2 - 3m - 2 = 0$$

$$a = 1$$

$$b = 3$$

$$c = -2$$

$$1) S^2 - 2P \rightarrow$$

$$S = m_1 + m_2 = -\frac{-3}{1} = 3$$

$$P = m_1 m_2 = \frac{-2}{1} = -2$$

$$\Rightarrow 3^2 - 2(-2) = 9 + 4 = 13$$

$$S = -\frac{b}{a}$$

$$P = \frac{c}{a}$$

$$2) S^2 - 3SP \rightarrow$$

$$3^2 - 3(3)(-2) = 9 + 18 = 27$$

(6) ✓

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