

الف) $x^2 - 8x - 9 = 0 \rightarrow x^2 - 8x - 9 = 0 \Rightarrow (x+1)(x-9) = 0 \Rightarrow x = -1, 9$
 $\Rightarrow \div 4 \left\{ x = \frac{4}{4}, -\frac{4}{4} \right\}$

ب) $x^2 - 10x + 9 = 0 \rightarrow x^2 - 10x + 9 = 0 \Rightarrow (x-1)(x-9) = 0 \Rightarrow x = 1, 9$
 $\Rightarrow \div 3 \left\{ x = 3, -\frac{1}{3} \right\}$

ج) $x^2 - 5x - 14 = 0 \rightarrow x^2 - 5x - 14 = 0 \Rightarrow (x-7)(x+2) = 0 \Rightarrow x = 7, -2$
 $\Rightarrow \div 4 \left\{ x = \frac{4}{4}, -\frac{1}{4} \right\}$

د) $x^2 - 8x - 12 = 0 \rightarrow x^2 - 8x - 12 = 0 \Rightarrow (x-10)(x+2) = 0 \Rightarrow x = 10, -2$
 $\div 4 \left\{ x = 4, -\frac{2}{4} \right\}$

الف) $x^2 - 8x - 14 = 0 \Rightarrow (x+2)(x-10) = 0 \Rightarrow x = -2, 10$

ب) $x^2 + 8x + 15 = 0 \Rightarrow (x+3)(x+5) = 0 \Rightarrow x = -3, -5$

ج) $x^2 + 2x + 1 = 0 \Rightarrow (x+1)^2 = 0 \Rightarrow x = -1$

د) $x^2 + 2x - 15 = 0 \Rightarrow b^2 - 4ac = 4 - (-20) = 24 \Rightarrow x = \frac{-2 \pm \sqrt{24}}{2}$

$A \times B = \{(1,2)(1,3)(2,2)(2,3)(3,2)(3,3)\}$, $B^c = \{(2,2)(2,3)(3,2)(3,3)\}$

$\Rightarrow A \times B - B^c = A \times B - (A \times B \cap B^c) = \{(1,2)(1,3)\}$

الف) $(2, m^2), (2, m+2) \Rightarrow m^2 = m+2 \Rightarrow m^2 - m - 2 = 0 \Rightarrow m = 2, -1$

if $m = 2 \rightarrow (2, 1), (2, 4) \Rightarrow$ غیر قابل قبول $\Rightarrow$ if $m = -1 \rightarrow (1, 1), (3, 1)$

$\Rightarrow m = -1$

ب) $(3, m^2), (3, m+2) \Rightarrow m^2 = m+2 \Rightarrow m^2 - m - 2 = 0 \Rightarrow m = 2, -1$

if $m = 2 \rightarrow (2, 1), (2, 4) \Rightarrow$ غیر قابل قبول $\Rightarrow$ if $m = -1 \rightarrow (-1, 4), (-1, 3)$

غیر قابل قبول

ازای هیچ مقدار تابع منفی نشود

$$(1, a^2), (1, a-2) \Rightarrow a^2(a-2) = a^2(a+2) \Rightarrow a=2, 1 \quad \gamma$$

if $a=1 \rightarrow (1,1), (1,1), (1,1) \rightarrow$ غیر قابل قبول $\Rightarrow a=2$

$$\kappa=1 \rightarrow a^2 - 1 \leq a+b \leq a+b \leq 0 \Rightarrow a=1, b=-1 \quad \gamma$$

$$\kappa=2 \rightarrow a+b \leq a^2 \Rightarrow a+b \leq 1$$

$$\Rightarrow ab \leq 1(-1) = -1 \quad \gamma$$

$$\kappa=3 \rightarrow 2a-5 \leq 5-a \leq 2K-5 \leq 5-3K \Rightarrow 3K \leq \sqrt{2}, K \leq \frac{\sqrt{2}}{3} \quad \gamma$$

$$\kappa=1 \Rightarrow y=0, \sqrt{4}, -\sqrt{4} \Rightarrow \text{تابع مثبت} \quad \gamma$$

$$\kappa=0 \Rightarrow y=2, -2 \Rightarrow \text{تابع مثبت} \quad \gamma$$

$$\kappa=0 \Rightarrow y=1, -1 \Rightarrow \text{تابع مثبت} \quad \gamma$$

نکته: $\kappa=1, y=0$ (مورد سادگی) $\Rightarrow$ مجموع ۲ عبارت نامنفی $\Rightarrow$ $y^2 + (a+1)^2 \geq 0$

$$\Rightarrow \text{تابع مثبت است} \quad \gamma$$

$$\kappa=1 \Rightarrow \sqrt{y_1} = a^2, \sqrt{y_2} = a-2 \Rightarrow \sqrt{y_1} + 2 = a^2 + 2a - 2 \quad \gamma$$

$$\Rightarrow \sqrt{y_1} = \sqrt{y_2} \Rightarrow y_1 = y_2 \Rightarrow \text{تابع مثبت است} \quad \gamma$$

$$\kappa=0 \Rightarrow y_1^2 - y_2^2 = y_1^2 + y_2^2 + 2y_1y_2 = 2a \Rightarrow y_1 + 2y_2 = y_2^2 + 2y_2 \Rightarrow y_1 - y_2^2 = y_2^2 - 2y_2 \quad \gamma$$

$$\Rightarrow (y_1 - y_2)(y_1 + y_2 + y_2^2) = 2y_2 - 2y_1 \Rightarrow (y_1 - y_2)(y_1 + y_2 + y_2^2 + 2) = 0$$

$$y_2^2 - 2y_2 - 1 < 0 \quad \leftarrow \text{برای هر } y_2 \text{ در این بازه برقرار است}$$

$$\Rightarrow y_1 - y_2^2 \geq 0 \Rightarrow y_1 \geq y_2 \Rightarrow \text{تابع مثبت است} \quad \gamma$$

$$\kappa=0 \Rightarrow y=0 \Rightarrow \text{تابع مثبت است} \quad \gamma$$

$$\kappa=1 \Rightarrow \sqrt{\frac{a}{y}} + \sqrt{\frac{y}{a}} \geq 2 \Rightarrow a, y \neq 0, \frac{a}{y} + \frac{y}{a} + 2 \geq 2 \Rightarrow \frac{a}{y} + \frac{y}{a} \geq 0 \quad \gamma$$

P4PCO

$$\frac{a^2 + y^2}{ay} \geq 2 \Rightarrow a^2 + y^2 \geq 2ay \Rightarrow a^2 + y^2 - 2ay \geq 0 \Rightarrow (a-y)^2 \geq 0 \Rightarrow a=y$$

تابع مثبت است γ