

الف)  $4x^2 - 5x - 4 = 0 \rightarrow x^2 - 5x - 4 = 0 \rightarrow (x-9)(x+4) = 0 \rightarrow \begin{cases} x = -\frac{4}{9} \\ x = 9 \end{cases}$

ب)  $3x^2 - 8x - 3 = 0 \rightarrow x^2 - 8x - 9 = 0 \rightarrow (x-9)(x+1) = 0 \rightarrow \begin{cases} x = -\frac{1}{3} \\ x = 3 \end{cases}$

ج)  $4x^2 - 4x - 2 = 0 \rightarrow x^2 - 4x - 1 = 0 \rightarrow (x-4)(x+1) = 0 \rightarrow \begin{cases} x = -\frac{1}{4} \\ x = \frac{5}{4} \end{cases}$

د)  $2x^2 - 5x - 12 = 0 \rightarrow x^2 - 5x - 6 = 0 \rightarrow (x-6)(x+1) = 0 \rightarrow \begin{cases} x = -\frac{1}{2} \\ x = 4 \end{cases}$

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الف)  $x^2 - 5x - 14 = 0 \rightarrow (x-7)(x+2) = 0 \rightarrow \begin{cases} x = 7 \\ x = -2 \end{cases}$

ب)  $2x^2 + 5x + 2 = 0 \rightarrow a+c = b \rightarrow \begin{cases} x = -1 \\ x = -\frac{2}{3} \end{cases}$

ج)  $x^2 + 2x + 3 = 0 \rightarrow \Delta < 0 \rightarrow \text{ریشه ندارد}$

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د)  $2x^2 + 3x - 2 = 0 \rightarrow \Delta = b^2 - 4ac = 9 - 4(2)(-2) = 25, x = \frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow \begin{cases} x = \frac{-3 + 5}{4} = \frac{1}{2} \\ x = \frac{-3 - 5}{4} = -2 \end{cases}$

$A = \{1, 2, 3\}$

$B = \{2, 3\}$

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

$\Rightarrow \{(1, 2), (1, 3)\}$

الف)  $m^2 = m + 2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m-2)(m+1) = 0 \rightarrow \begin{cases} m = -1 \\ m = 2 \end{cases}$

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ب)  $m^2 = m + 2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m-2)(m+1) = 0 \rightarrow \begin{cases} m = -1 \rightarrow (-1, 3), (-1, 4) \\ m = 2 \rightarrow (2, 1), (2, 2) \end{cases}$

$a^2 = 3a - 2 \rightarrow a^2 - 3a + 2 = 0 \rightarrow \begin{cases} a = 1 \Rightarrow f(a) = \{(1, 1), (1, 2), (1, 5)\} \\ a = 2 \Rightarrow f(a) = \{(2, 4), (2, 1), (2, 8)\} \end{cases}$

بازی استاندارد

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$$\begin{aligned} \text{بازای } n=1 & \rightarrow x^2-1 = a+b \xrightarrow{x=1} a+b=0 \\ \text{بازای } n=2 & \rightarrow a+b+2x^2 \xrightarrow{x=2} 4a+b=1 \end{aligned} \quad \left. \begin{array}{l} // \\ // \end{array} \right\} \rightarrow a=1, b=-1$$

$$a \times b = -1$$

$$\text{بازای } n=k \rightarrow y_{n-2} = f - y_n \xrightarrow{n=k} y_{k-2} = f - y_k \rightarrow \omega k = v \rightarrow k = \frac{v}{\omega}$$

$$\text{الف) } y^2 - 4y + x^2 - 4x + 2 \xrightarrow{x=1} y^2 - 4y + 2 = 0 \rightarrow y = \frac{4 \pm \sqrt{16-8}}{2} = 2 \pm \sqrt{2}$$

$$\text{ب) } |x| + |y| + z^2 \xrightarrow{x=1} 1 + |y| + z^2 = y^2 \rightarrow y = z \text{ تابع}$$

$$\text{ج) } |y| = \sqrt{1 - \cos x} \rightarrow \text{بازای نقاط } 0 \leq x \leq \pi \text{ تابع}$$

$$\text{د) } y^2 + x^2 + 2x + 1 = 0 \rightarrow y^2 + (x+1)^2 = 0 \rightarrow \text{بازای نقطه } (-1, 0) \text{ تابع}$$

$$\begin{aligned} \text{الف) } \sqrt{y} + x^2 + 2x - 2 & \rightarrow x^2 + 2x + 2 = -\sqrt{y} \rightarrow \left. \begin{array}{l} x_1^2 + 2x_1 + 2 = -\sqrt{y_1} \\ x_2^2 + 2x_2 + 2 = -\sqrt{y_2} \end{array} \right\} \rightarrow \begin{array}{l} x_1 = x_2 = \sqrt{y} \\ x_1 = x_2 = -\sqrt{y} \end{array} \end{aligned}$$

$$y_1 = y_2 \text{ تابع}$$

$$\text{ب) } y^2 + 2y = \omega x \rightarrow y(y+2) = \omega x \rightarrow \text{تابع}$$

$$\text{الف) } x \sin y = y \sin x \xrightarrow{x=0} 0 = y \sin 0 \rightarrow y = \infty \text{ تابع}$$

$$\text{ب) } \sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2 \rightarrow \text{بازای } x=y \text{ تابع}$$