

الف) $2x^2 - 4x - 6 = 0 \rightarrow x^2 - 2x - 3 = 0$ $(x-3)(x+1)$
 $\frac{2}{2} \rightarrow \frac{4}{2} \rightarrow \frac{6}{2}$ $\rightarrow -\frac{4}{2} = -\frac{6}{2}$

ب) $2x^2 - 1x - 2 = 0 \rightarrow x^2 - \frac{1}{2}x - 1 = 0$ $(x-1)(x+1)$
 $\frac{2}{2} \rightarrow \frac{1}{2} \rightarrow \frac{2}{2}$ $\rightarrow -\frac{1}{2} = -\frac{2}{2}$

ج) $2x^2 - 4x - 12 = 0 \rightarrow x^2 - 2x - 6 = 0$ $(x-3)(x+2)$
 $\frac{2}{2} \rightarrow \frac{4}{2} \rightarrow \frac{12}{2}$ $\rightarrow -\frac{4}{2} = -\frac{12}{2}$

د) $2x^2 - 4x - 12 = 0 \rightarrow x^2 - 2x - 6 = 0$ $(x-1)(x+3)$
 $\frac{2}{2} \rightarrow \frac{4}{2} \rightarrow \frac{12}{2}$ $\rightarrow -\frac{4}{2} = -\frac{12}{2}$

1

الف) $2x^2 - 4x - 12 = 0$ $(x-3)(x+2)$
 $\frac{2}{2} \rightarrow \frac{4}{2} \rightarrow \frac{12}{2}$ $\rightarrow -\frac{4}{2} = -\frac{12}{2}$

ب) $2x^2 + 4x + 4 = 0$ $x^2 + 2x + 2 = 0$ $(x+1)(x+2)$
 $\frac{2}{2} \rightarrow \frac{4}{2} \rightarrow \frac{4}{2}$ $\rightarrow -\frac{4}{2} = -\frac{4}{2}$

ج) $2x^2 + 4x + 4 = 0$ $\Delta = 4 - 12 = -8 \rightarrow \Delta < 0 \rightarrow$ ریشه ندارد

د) $2x^2 + 4x - 4 = 0 \rightarrow \Delta = 16 + 32 = 48$ $x = \frac{-4 \pm \sqrt{48}}{4}$

2

$B^T = \{(2, 2), (2, 3), (3, 2), (3, 3)\}$

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

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

3

الف) $f(x) = \{(2, m^2), (2, 1), (-3, m), (-2, m), (2, m+2), (m, 4)\}$ $m^2 = m+2$
 $m^2 - m = 2$ $m(m-1) = 2$

ب) $g(x) = \{(2, m^2), (2, 1), (m, 4), (2, m+2), (-2, m), (-1, 2)\}$ $m^2 = m+2$
 $m(m-1) = 2$ $m = 2$ $m = -1$

4

$f(x) = \{(1, a^2), (1, 3a-2), (a^2, 3a+2)\}$ $a^2 = 3a-2$
 $a^2 - 3a = -2$
 $a(a-3) = -2$

$a = 1$ $a = 2$ $a = 3$ $a = 4$

5

$$f(x) = \begin{cases} x^2 - 1 & x \leq 1 \\ ax + b & 1 \leq x \leq 2 \\ x^2 & x > 2 \end{cases} \quad \begin{matrix} x=1 \rightarrow a+b=0 \\ x=2 \rightarrow 2a+b=1 \end{matrix}$$

$$\begin{matrix} a=1 \\ b=-1 \end{matrix}$$

$$a \times b \rightarrow 1 \times (-1) = -1$$

$$f(x) = \begin{cases} 2x - 3 & x > K \\ 5 - 3x & x \leq K \end{cases}$$

$$2x - 3 = 5 - 3x$$

$$\begin{matrix} 2x + 3x = 5 + 3 \\ 5x = 8 \\ x = \frac{8}{5} \end{matrix}$$

$$x = K = \frac{8}{5} = 1.6$$

$$2x - 3 = 5 - 3x$$

$$2x + 3x = 5 + 3$$

$$5x = 8 \quad x = \frac{8}{5}$$

الف) $y^3 - 6y = x^2 - 4x + 3 \Rightarrow$ تابع نسبت می توانیم بنویسیم

ب) $|x| + |y| = 3$ تابع نسبت

$$y^2 + x^2 + 2x + 1 = 0 \quad \sqrt{\text{تابع نسبت}}$$

$$\cos x \leq 1 \rightarrow -1 \leq \cos x \leq 1 \rightarrow \cos x = 1$$

$$2) |y| = \sqrt{1 - \cos x} = 0 \rightarrow y = + - 1 - \cos x$$

پس تابع نیست بیخشید من خونه نبودم میخواستم جوابم رو که نوشتن درست کم باید تایید میکردم

الف) $\sqrt[3]{y} + x^2 = 2x - 2 \rightarrow \begin{cases} \sqrt[3]{y_1} = 2x - 2x^2 - 2 \\ \sqrt[3]{y_2} = 2x - 2x^2 - 2 \end{cases} \Rightarrow y_1 = (2x - 2x^2 - 2)^3 \rightarrow y_1 = y_2 \text{ تابع نسبت}$

ب) $y^3 + 2y = ax \rightarrow \begin{cases} y_1^3 + 2y_1 = ax \\ y_2^3 + 2y_2 = ax \end{cases} \Rightarrow y_1^3 + 2y_1 = y_2^3 + 2y_2$

$$y_1^3 - y_2^3 + 2y_1 - 2y_2 = 0$$

$$(y_1 - y_2)(y_1^2 + y_1y_2 + y_2^2 + 2) = 0$$

الف) $x \sin y = y \sin x$

تابع نسبت

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

$$\rightarrow x = y \text{ تابع نسبت}$$