

نام و نام خانوادگی هجری پاسخنامه تشریحی تکلیف شماره کلاس دبیرانه B - نازم

$$\begin{aligned}
 9x^2 - 5x - 400 &= 0 \Rightarrow x^2 - 5x - 39 = 0 \Rightarrow (x-9)(x+4) = 0 \Rightarrow 9, -4 \Rightarrow \frac{9}{9} \text{ و } \frac{-4}{9} \Rightarrow \left\{ \frac{9}{9}, \frac{-4}{9} \right\} \\
 13x^2 - 8x - 9 &= 0 \Rightarrow x^2 - 8x - 9 = 0 \Rightarrow (x-9)(x+1) = 0 \Rightarrow 9, -1 \Rightarrow \frac{9}{13} \text{ و } \frac{-1}{13} \Rightarrow \left\{ \frac{9}{13}, \frac{-1}{13} \right\} \\
 2x^2 - 5x - 12 &= 0 \Rightarrow x^2 - 5x - 12 = 0 \Rightarrow (x-9)(x+2) = 0 \Rightarrow 9, -2 \Rightarrow \frac{9}{2} \text{ و } \frac{-2}{2} \Rightarrow \left\{ \frac{9}{2}, -1 \right\} \\
 2x^2 - 5x - 12 &= 0 \Rightarrow x^2 - 5x - 12 = 0 \Rightarrow (x-8)(x+3) = 0 \Rightarrow 8, -3 \Rightarrow \frac{8}{2} \text{ و } \frac{-3}{2} \Rightarrow \left\{ 4, -\frac{3}{2} \right\}
 \end{aligned}$$

$$\begin{aligned}
 x^2 - 5x - 12 &= 0 \Rightarrow (x-7)(x+2) = 0 \Rightarrow \left\{ 7, -2 \right\} \\
 2x^2 + 5x + 3 &= 0 \Rightarrow \Delta = 25 - 4(2)(3) = 1 \Rightarrow \frac{-5 \pm \sqrt{1}}{4} \Rightarrow \frac{-5 \pm 1}{4} \Rightarrow \frac{-4}{4} \text{ و } \frac{-6}{4} \Rightarrow \left\{ -1, -\frac{3}{2} \right\} \\
 x^2 + 2x + 3 &= 0 \Rightarrow \Delta = 4 - 4(1)(3) = -8 \Rightarrow \text{ریشه ندارد} \\
 3x^2 + 4x - 2 &= 0 \Rightarrow \Delta = 16 - 4(3)(-2) = 40 \Rightarrow \frac{-4 \pm \sqrt{40}}{6} \Rightarrow \left\{ \frac{-4 + \sqrt{40}}{6}, \frac{-4 - \sqrt{40}}{6} \right\}
 \end{aligned}$$

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

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

* هر ۲ می توانیم به دو وجه با هم برابر *

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

$$m^2 = m+2 \Rightarrow m^2 - m - 2 = 0 \Rightarrow \frac{a+c=b}{-1, -\frac{c}{a}} \Rightarrow \left\{ -1, 2 \right\}$$

$$\text{ب)} g(x) = \{(3, m^2)(2, 1)(m, 4)(3, m+2)(-2, m)(-1, 3)\}$$

$$m^2 = m+2 \Rightarrow m^2 - m - 2 = 0 \Rightarrow \frac{a+c=b}{-1, -\frac{c}{a}} \Rightarrow \left\{ -1, 2 \right\}$$

عبارت «ب» به ازای هیچ مقداری
م تابع نمی شود

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

$$a^2 = 3a-2 \Rightarrow a^2 - 3a + 2 = 0 \Rightarrow \frac{a+b+c=0}{1, \frac{c}{a}} \Rightarrow \left\{ 1, 2 \right\}$$

به ازای عدد ۱ به ما دو مقدار متفاوت را می دهد
پس تابع نمی شود

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

$$\begin{aligned} 2(a+b=0) &\Rightarrow 2a+2b=0 \\ 2a+b=1 &\Rightarrow \underline{2a+b=1} \end{aligned} \Rightarrow \begin{aligned} 2a+2b=0 \\ 2a+b=1 \end{aligned} \Rightarrow \begin{aligned} a &= 1 \\ b &= -1 \end{aligned} \Rightarrow \underline{ab = -1} \quad \text{پ}$$

$$f(x) = \begin{cases} 2x-3 & x \geq K \\ K-3x & x \leq K \end{cases} \xrightarrow{x=K} 2K-3 = K-3K \Rightarrow 2K+3K = 3+3 \Rightarrow \Delta K = V$$

$$\boxed{K = \frac{V}{\Delta}} \quad \text{پ}$$

$$y^2 - 4y = x^2 - 2x + 3 \xrightarrow{x=1} y^2 - 4y = 0 \rightarrow y(y^2 - 4) = 0 \Rightarrow \begin{aligned} &\sqrt{4} \\ &-\sqrt{4} \end{aligned} \quad \text{تابع نیست} \quad \text{پ}$$

$$|x| + |y| = 3 \xrightarrow{x=0} |y| = 3 \Rightarrow \begin{aligned} &3 \\ &-3 \end{aligned} \quad \text{تابع نیست} \quad \text{پ}$$

$$|y| = \sqrt{1 - \cos x} \xrightarrow{x=0} |y| = \sqrt{1} = 1 \Rightarrow \begin{aligned} &1 \\ &-1 \end{aligned} \quad \text{تابع نیست} \quad \text{پ}$$

$$y^2 + x^2 + 2x + 1 = 0 \Rightarrow (x+1)^2 + y^2 = 0 \Rightarrow x = -1, y = 0 \quad \text{تابع نیست} \quad \text{پ}$$

$$\sqrt[3]{y} + x^2 = 2x + 2 \rightarrow \begin{cases} \sqrt[3]{y}_1 = -x^2 + 2x + 2 \\ \sqrt[3]{y}_2 = -x^2 + 2x + 2 \end{cases} \Rightarrow \sqrt[3]{y}_1 = \sqrt[3]{y}_2 \xrightarrow{\text{توان 3}} y_1 = y_2 \quad \text{تابع نیست} \quad \text{پ}$$

$$\begin{aligned} y_1^2 + 2y_1 &= \Delta x \\ y_2^2 + 2y_2 &= \Delta x \end{aligned} \Rightarrow y_1^2 + 2y_1 = y_2^2 + 2y_2 \Rightarrow y_1^2 - y_2^2 + 2y_1 - 2y_2 = 0 \Rightarrow (y_1 - y_2)(y_1 + y_2 + 2) = 0$$

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

$$x \sin y = y \sin x \xrightarrow{x=0} 0 \sin y = y \sin 0 \rightarrow y = 0 \quad \text{تابع نیست} \quad \text{پ}$$

$$\left(\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2 \right)^2 \Rightarrow \frac{x}{y} + \frac{y}{x} + 2 \left(\sqrt{\frac{x}{y}} \right) \left(\sqrt{\frac{y}{x}} \right) = 4 \Rightarrow \frac{x}{y} + \frac{y}{x} + 2 = 4 \Rightarrow \frac{x}{y} + \frac{y}{x} = 2$$

$$\frac{x}{y} + \frac{y}{x} = 2 \Rightarrow \frac{x^2 + y^2}{xy} = 2 \Rightarrow x^2 + y^2 - 2xy = 0 \Rightarrow (x-y)^2 = 0 \Rightarrow x = y \quad \text{تابع نیست} \quad \text{پ}$$

$$(10-ب) \sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2$$

این عبارت تنها زمانی به قدر است که $1 = \sqrt{\frac{x}{y}}$ باشد پس

$$\sqrt{\frac{x}{y}} = 1 \leadsto \frac{x}{y} = 1 \leadsto x = y \text{ و } (x, y \neq 0)$$

