

۲. آفرین

نام و نام خانوادگی: بهارینا نارنج پاسخنامه تشریحی تکلیف شماره ۱ کلاس: دختر	
الف) $6x^2 - 5x - 4 = 0 \rightarrow x^2 - 5x - 34 = 0 \rightarrow (x-9)(x+4) = 0 \rightarrow x = \frac{9}{1} = 9$ $x = \frac{-4}{1} = -4$ ب) $3x^2 - 1x - 3 = 0 \rightarrow x^2 - 1x - 9 = 0 \rightarrow (x-9)(x+1) = 0 \rightarrow x = \frac{9}{1} = 9$ $x = \frac{-1}{1} = -1$ ج) $4x^2 - 14x - 3 = 0 \rightarrow x^2 - 14x - 12 = 0 \rightarrow (x-6)(x+2) = 0 \rightarrow x = \frac{6}{1} = 6$ $x = \frac{-2}{1} = -2$ د) $2x^2 - 5x - 12 = 0 \rightarrow x^2 - 5x - 12 = 0 \rightarrow (x-8)(x+3) = 0 \rightarrow x = \frac{8}{1} = 8$ $x = \frac{-3}{1} = -3$	۱
الف) $x^2 - 5x - 14 = 0 \rightarrow (x-7)(x+2) = 0 \rightarrow x = 7$ $x = -2$ ب) $2x^2 + 5x + 3 = 0 \rightarrow x^2 + 5x + 6 = 0 \rightarrow (x+2)(x+3) = 0 \rightarrow x = \frac{-2}{1} = -2$ $x = \frac{-3}{1} = -3$ ج) $x^2 + 2x + 3 = 0 \rightarrow \Delta = 2^2 - (1 \times 3 \times 1) = 4 - 12 = -8 \rightarrow \Delta < 0$ ریشه ندارد د) $3x^2 + 2x - 2 = 0 \rightarrow \Delta = 2^2 - (4 \times 3 \times -2) = 4 + 24 = 28 \rightarrow x = \frac{-2 \pm \sqrt{28}}{6}$	۲
$A \times B = \{(1,2), (1,3), (2,2), (2,3), (3,2), (3,3)\}$ $B^r = B \times B = \{(2,2), (2,3), (3,2), (3,3)\}$ $A \times B - B^r = \{(1,2), (1,3)\}$	۳
الف) $f(x) = \{(3, m^2), (2, 1), (-3, m), (-2, m), (3, m+2), (m, 4)\} \rightarrow m^2 = m+2 \rightarrow m^2 - m - 2 = 0$ $\frac{a+b+c}{a+c=b} \rightarrow m = 2$ $m = -1$ ب) $g(x) = \{(3, m^2), (2, 1), (m, 4), (3, m+2), (-2, m), (-1, 3)\}$ $m^2 = m+2 \rightarrow m^2 - m - 2 = 0 \rightarrow m = -1$ $m = 2$	۴
$f(x) = \{(1, a^2), (1, 3a-2), (a^2, 3a+2)\}$ $a^2 = 3a-2 \rightarrow a^2 - 3a + 2 = 0 \xrightarrow{a+b+c=0} a = 1$ $a = \frac{2}{1} = 2$ $a = 1 \rightarrow (a^2, 3a+2) \rightarrow (1, 5) \rightarrow$ به ازای دردی یک خروجی دارد $a = 2 \rightarrow (a^2, 3a+2) \rightarrow (4, 14) \checkmark$ قابل قبول	۵

$$f(x) = \begin{cases} x^2 - 1 & x \leq 1 \\ ax + b & 1 < x \leq 2 \\ x^3 & x > 2 \end{cases}$$

$$\begin{aligned} x=1 \rightarrow |f| = a+b \rightarrow a+b=0 \xrightarrow{x=1} -a-b=0 \\ x=2 \rightarrow 2a+b=1 \end{aligned} \quad \left\{ \begin{array}{l} -a-b=0 \\ + 2a+b=1 \\ \hline a=1 \\ b=-1 \end{array} \right\} a \times b = -1 \times 1 = -1 \quad \text{✓}$$

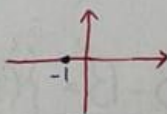
$$f(x) = \begin{cases} 2x-3 & x \geq k \\ 4-3x & x \leq k \end{cases}$$

$$2x-3 = 4-3x \rightarrow 5x=7 \rightarrow x = \frac{7}{5} \rightarrow k = \frac{7}{5} \quad \text{✓}$$

تابع نیست چون اگر بین y^3 و y علامت منفی باشد عبارت تابع مثبت $\rightarrow$ $y^3 - y = x^2 - 14x + 3 \rightarrow$ $\times$

تابع نیست $\rightarrow$ $|x| + |y| = 3$ if $x=0 \rightarrow |y|=3 \rightarrow y = \pm 3 \rightarrow$ $\times$

تابع نیست $\rightarrow$ $|y| = \sqrt{1 - \cos x} \xrightarrow{x=180^\circ} \sqrt{1 - \cos x} = \sqrt{2} \rightarrow |y| = \sqrt{2} \rightarrow y = \pm \sqrt{2} \rightarrow$ $\times$

تابع هست $\rightarrow y^2 + x^2 + 2x + 1 = 0 \rightarrow y^2 + (x+1)^2 = 0 \rightarrow (-1, 0)$ $\rightarrow$ $\times$ 

تابع هست $\rightarrow \sqrt[3]{y_1} + x_1^2 = 2x_1 - 2$ $\left\{ \begin{array}{l} x_1 = x_2 \rightarrow x_1^2 = x_2^2 \\ \sqrt[3]{y_1} + x_1^2 = 2x_1 - 2 \\ \sqrt[3]{y_2} + x_2^2 = 2x_2 - 2 \end{array} \right\} \rightarrow \sqrt[3]{y_1} = \sqrt[3]{y_2} \rightarrow y_1 = y_2 \quad \text{✓}$

تابع هست $\rightarrow y_1^3 + 2y_1 = 5x_1$ $\left\{ \begin{array}{l} x_1 = x_2 \rightarrow 5x_1 = 5x_2 \\ y_1^3 + 2y_1 = 5x_1 \\ y_2^3 + 2y_2 = 5x_2 \end{array} \right\} \rightarrow y_1^3 + 2y_1 = y_2^3 + 2y_2 \rightarrow y_1^3 - y_2^3 + 2y_1 - 2y_2 = 0 \rightarrow (y_1 - y_2)(y_1^2 + y_1y_2 + y_2^2 + 2) = 0$
 $(y_1 - y_2)(y_1^2 + y_1y_2 + y_2^2 + 2) = 0 \rightarrow y_1 - y_2 = 0 \rightarrow y_1 = y_2 \quad \text{✓}$

بسیار از هر مقدار این رابطه برقرار است $\rightarrow$ تابع نیست $\rightarrow x \sin y = y \sin x \xrightarrow{x=0} 0 \sin y = y \sin 0 \rightarrow 0 = 0 \rightarrow$ $\times$

تابع هست $\rightarrow \sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2 \quad t = \sqrt{\frac{x}{y}} \rightarrow \frac{1}{t} = \sqrt{\frac{y}{x}}$

$t + \frac{1}{t} = 2 \xrightarrow{\times t} t^2 + 1 = 2t \rightarrow t^2 - 2t + 1 = 0 \rightarrow (t-1)^2 = 0 \rightarrow t = 1$ $\rightarrow$ $\times$

خط $y=x$ $\rightarrow \sqrt{\frac{x}{y}} = 1 \xrightarrow{\text{توان 2}} \frac{x}{y} = 1 \rightarrow x=y \rightarrow x \neq 0$ $\left\{ \begin{array}{l} x=y \\ y \neq 0 \end{array} \right\}$ $\rightarrow$ $\times$ 