

نام و نام خانوادگی: <u>ایبریحیمی</u> پاسخنامه تشریحی تکلیف شماره کلاس: <u>پانزدهم پسر</u>		
الف) $9x^2 - 5x - 6 = 0 \rightarrow x^2 - 5x - 2 = 0 \rightarrow (x-9)(x+2) = 0 \rightarrow x_0 = \frac{9}{1} \text{ و } -\frac{2}{1}$	۱	
ب) $3x^2 - 8x - 3 = 0 \rightarrow x^2 - 8x - 9 = 0 \rightarrow (x-9)(x+1) = 0 \rightarrow x_0 = \frac{9}{1} \text{ و } -\frac{1}{1}$		
ج) $5x^2 - 5x - 12 = 0 \rightarrow x^2 - 5x - 12 = 0 \rightarrow (x-6)(x+2) = 0 \rightarrow x_0 = \frac{6}{2} \text{ و } -\frac{2}{2}$		
د) $2x^2 - 5x - 12 = 0 \rightarrow x^2 - 5x - 24 = 0 \rightarrow (x-8)(x+3) = 0 \rightarrow x_0 = \frac{8}{1} \text{ و } -\frac{3}{1}$		
الف) $x^2 - 5x - 14 = 0 \rightarrow (x-7)(x+2) = 0 \rightarrow x_0 = 7 \text{ و } -2$		۲
ب) $2x^2 + 5x + 3 = 0 \xrightarrow{a+c=b} x_0 = -1, -\frac{3}{2} \rightarrow x_0 = -1 \text{ و } -\frac{3}{2}$		
ج) $x^2 + 2x + 3 = 0 \rightarrow \Delta = b^2 - 4ac = 4 - 12 = -8 \rightarrow \Delta < 0 \rightarrow$ بدون ریشه		
د) $3x^2 + 5x - 2 = 0 \rightarrow \Delta = 25 - 4(-6) = 25 + 24 = 49 \rightarrow x_0 = \frac{-5 \pm \sqrt{49}}{6} = \frac{-5 \pm 7}{6}$		
$A \times B = \{(1,2), (1,4), (2,3), (2,5), (3,2), (4,4)\}$ $B^T = \{(2,2), (2,4), (4,2), (4,4)\}$ $\Rightarrow A \times B - B^T = \{(1,2), (1,4)\}$		۳
الف) $m^2 = m + 2 \rightarrow m^2 - m - 2 = 0 \rightarrow m \begin{cases} 2 \rightarrow (2,1) (2,4) \times \\ -1 \checkmark \Rightarrow m = -1 \end{cases}$		۴
ب) $m^2 = m + 2 \rightarrow m^2 - m - 2 = 0 \rightarrow m \begin{cases} 2 \rightarrow (2,1) (2,4) \times \\ -1 \rightarrow (-1,2) (-1,4) \times \end{cases}$ هیچ مقدار از m		
$f(a) = \{(1, a^2), (1, 3a-2), (a^2, 3a+2)\}$ $a^2 = 3a - 2 \rightarrow a^2 - 3a + 2 = 0 \rightarrow a \begin{cases} 1 \rightarrow (1,1) (1,0) \times \\ 2 \checkmark \Rightarrow a = 2 \end{cases}$		۵

$$f(x) = \begin{cases} x^2 - 1 : x \leq 1 \\ ax + b : 1 \leq x \leq 2 \\ x^2 : x > 2 \end{cases} \begin{cases} x=1 \Rightarrow 1^2 - 1 = a + b \Rightarrow a + b = 0 \\ x=2 \Rightarrow 2^2 = 2a + b \Rightarrow 2a + b = 1 \end{cases} \Rightarrow a = 1, b = -1 \Rightarrow a \times b = -1$$

$$f(x) = \begin{cases} 2x - 3 : x \geq K \\ \varepsilon - 2x : x \leq K \end{cases} \begin{cases} x=K \Rightarrow 2K - 3 = \varepsilon - 2K \\ \Delta K = \nu \Rightarrow K = \frac{\nu}{4} \end{cases}$$

الف) $y^3 - 4y = x^2 - \varepsilon x + 3 \xrightarrow{x=1} y^3 - 4y = 0 \Rightarrow y(y^2 - 4) = 0 \Rightarrow y = 0, \pm 2$ X نفس

ب) $|x| + |y| = \varepsilon \xrightarrow{x=0} y = \pm \varepsilon$ X نفس

ج) $|y| = \sqrt{1 - \cos x} \xrightarrow[\substack{\cos x = 0 \\ x = 90^\circ}]{} |y| = 1 \Rightarrow y = \pm 1$ X نفس

د) $y^2 + x^2 + 2x + 1 = 0 \Rightarrow y^2 + (x+1)^2 = 0 \xrightarrow{\text{نقطه}} (-1, 0)$ ✓ صحت

الف) $\sqrt[3]{y} + x^2 = 2x - 2 \Rightarrow \begin{cases} \sqrt[3]{y_1} = -x^2 + 2x - 2 \\ \sqrt[3]{y_2} = -x^2 + 2x - 2 \end{cases} \Rightarrow \sqrt[3]{y_1} = \sqrt[3]{y_2} \xrightarrow{\text{توکل}} y_1 = y_2$ ✓ تابع است

ب) $y^2 + 2y = dx \Rightarrow y_1^2 + 2y_1 = y_2^2 + 2y_2 \Rightarrow y_1^2 - y_2^2 + 2y_1 - 2y_2 = 0$ ✓

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

الف) $x \sin y = y \sin x \xrightarrow[\substack{x=0 \\ \text{شکل نقض}}]{} 0 \times \sin y = y \sin 0 \Rightarrow y = (-\infty, \infty)$ X تابع نیست

ب) $\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2 \xrightarrow{\text{توکل}} \frac{x}{y} + \frac{y}{x} + 2 = \varepsilon \Rightarrow \frac{x^2 + y^2}{xy} = 2$ ✓

$x^2 - 2xy + y^2 = 0 \Rightarrow (x - y)^2 = 0 \Rightarrow x = y$ ✓ تابع است

نقطه $x=y=0$ را در نظر بگیرید!