

۲. آفرین ضمیمه کلاس!

نام و نام خانوادگی	پاسخنامه تشریحی تکلیف شماره	کلاس
۱	الف) $4x^2 - 4x - 4 = 0 \rightarrow x^2 - x - 1 = 0 \rightarrow (x-1)(x+1) = 0 \rightarrow \begin{cases} x_1 = 1 \\ x_2 = -1 \end{cases}$ ب) $3x^2 - 18x - 9 = 0 \rightarrow x^2 - 6x - 3 = 0 \rightarrow (x-3)(x+1) = 0 \rightarrow \begin{cases} x_1 = 3 \\ x_2 = -1 \end{cases}$ ج) $5x^2 - 5x - 12 = 0 \rightarrow x^2 - x - 12 = 0 \rightarrow (x-4)(x+3) = 0 \rightarrow \begin{cases} x_1 = 4 \\ x_2 = -3 \end{cases}$ د) $2x^2 - 5x - 12 = 0 \rightarrow x^2 - 5x - 24 = 0 \rightarrow (x-8)(x+3) = 0 \rightarrow \begin{cases} x_1 = 8 \\ x_2 = -3 \end{cases}$	
۲	الف) $x^2 - 5x - 14 = 0 \rightarrow (x-7)(x+2) = 0 \rightarrow x = 7, -2$ ب) $2x^2 + 5x + 3 = 0 \rightarrow x^2 + 2.5x + 1.5 = 0 \rightarrow (x+1)(x+1.5) = 0 \rightarrow \begin{cases} x_1 = -1 \\ x_2 = -1.5 \end{cases}$ ج) $x^2 + 2x + 3 = 0 \rightarrow \Delta = b^2 - 4ac = 4 - 12 = -8 < 0$ (ریشه حقیقی ندارد) د) $3x^2 + 3x - 2 = 0 \rightarrow \Delta = b^2 - 4ac = 9 + 24 = 33 \rightarrow x = \frac{-3 \pm \sqrt{33}}{6}$ $x_1 = \frac{-3 + \sqrt{33}}{6}$ و $x_2 = \frac{-3 - \sqrt{33}}{6}$	
۳	$B^2 = B \times B \rightarrow \{(2,2), (3,3), (3,2), (2,2)\}$ $A \times B = \{(1,2), (1,3), (2,2), (2,3), (3,3), (3,2)\}$ $A \times B - B^2 = \{(1,2), (1,3)\}$	
۴	الف) $m^2 = m + 2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m-2)(m+1) = 0 \rightarrow m = 2, -1$ if $m = 2 \rightarrow f(x) = \{(3,4), (2,1), (-3,2), (-2,2), (3,4), (2,4)\}$ ب) $m^2 = m + 2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m-2)(m+1) = 0 \rightarrow m = 2, -1$ if $m = -1 \rightarrow g(x) = \{(3,1), (2,1), (-3,4), (-2,-1), (3,1), (-2,-1)\}$ if $m = 2 \rightarrow g(x) = \{(3,4), (2,1), (2,4), (-3,4), (-2,4), (-1,3)\}$	تابع نسبت تابع نسبت تابع نسبت
۵	$f(x) = \{(1, a^2), (1, 2a+2), (a^2, 2a+2)\}$ $a^2 = 2a + 2 \rightarrow a^2 - 2a - 2 = 0 \rightarrow 1 - 2 + 2 = 0 \rightarrow \begin{cases} a = 1 \\ a = -1 \end{cases}$ if $a = 1 \rightarrow f(x) = \{(1,1), (1,4), (1,4)\} \rightarrow$ تابع ثابت if $a = -1 \rightarrow f(x) = \{(1,1), (1,0), (1,0)\} \rightarrow$ تابع هست	فقط برای $a = 2$ تابع است

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

$$x=1 \rightarrow x^r-1 = ax+b \rightarrow a+b=0 \rightarrow a=-b$$

$$x=y \rightarrow ax+b = x^w \rightarrow ya+b = \wedge$$

$$-1b + b = 1 \rightarrow -b = 1 \rightarrow b = -1$$

$$ab = -4 \quad a = -1$$

$$f(x) = \begin{cases} 4x - 3 & x \geq k \\ 8 - 3x & x < k \end{cases}$$

$$\Rightarrow \frac{I}{II} \varphi_{\alpha} = \varepsilon - \varphi_{\alpha} \rightarrow \Delta \varphi = V \rightarrow \varphi = \frac{V}{\Delta}$$

II $\eta = k \rightarrow k = \frac{V}{\omega}$

الف) $y''' - 4y = x^2 - 8x + 3 \rightarrow y''' - y = \text{---} \rightarrow \text{رابطه}$

ب) $|x| + |y| = 3 \rightarrow x=0 \rightarrow y=3$
 $\rightarrow y=-3 \rightarrow$ ~~نقطه~~

2.) $|y| = \sqrt{1 - \cos \alpha} = \cos \frac{\alpha}{2} = 1$
 $|y| = \sqrt{r} \rightarrow y = \pm 1 \rightarrow$ ~~باب~~

c) $y^2 + x^2 + 2x + 1 = 0 \rightarrow x = -1 \rightarrow y = 0$ (بمعنى واحد)

$$\left. \begin{aligned} \sqrt[3]{y_1} &= -x_1^2 + 2x_1 - 2 \\ \sqrt[3]{y_2} &= -x_2^2 + 2x_2 - 2 \end{aligned} \right\} \xrightarrow{x_1=x_2} \sqrt[3]{y_1} = \sqrt[3]{y_2} \rightarrow y_1 = y_2$$

$$y^3 + 2y = \Delta x \quad (\text{ب. تابعیات})$$

$$\left. \begin{aligned} y_1 + r y_1 &= \omega x_1 \\ y_r + r y_r &= \Delta x_r \end{aligned} \right\} \rightarrow \begin{aligned} x_1 &= x_r \cdot \frac{y_1 + r y_1}{y_r + r y_r} = \frac{y_1 + r y_1}{y_r + r y_r} x_r \end{aligned}$$

$$(y_1 - y_r)(y_1 + y_r + y_r^2) + r(y_1 - y_r) \rightarrow (y_1 - y_r)(y_1 + y_r + y_r^2 + r) = 0$$

$\sin y = y \sin x \begin{cases} x=0 \\ 0 = y \sin 0 \rightarrow 0=0 \end{cases}$

$$\Rightarrow \sqrt{\frac{x}{y}} = + \mid \sqrt{\frac{y}{x}} = \frac{1}{+} \quad + \cdot \frac{1}{+} = + \rightarrow +^2_{+1} = + \rightarrow +^2_{+1} - + = 0$$

$$(t-1)^2 = 0 \rightarrow t=1 \Rightarrow \sqrt{\frac{x}{y}} = 1 \rightarrow \frac{x}{y} = 1 \rightarrow x=y$$