بنام خدا

SUBJECT: رایان معماریان یازدهم A تکلیف: ۲

Year: Month: Day: Page : ( )

۱)

$x \geq 1 \Rightarrow \frac{1}{x-1} = x-1 \Rightarrow 1 = x^2 - 2x + 1 \Rightarrow x^2 - 2x = x(x-2) = 0 \Rightarrow x = 2$ ✓ ، $x = 0$ غ ق ق

$x < 1 \Rightarrow \frac{1}{x-1} = 1 - x \Rightarrow -1 = x^2 - 2x + 1 \Rightarrow x^2 - 2x + 2 = 0$ ، $\Delta < 0$ ریشه ندارد

یک ریشه دارد

۲)

الف) $\left|\frac{2x-1}{x}\right| < 2 \Rightarrow -2 < \frac{2x-1}{x} < 2 \Rightarrow -2 < 2 - \frac{1}{x} < 2 \Rightarrow -4 < -\frac{1}{x} < 0$

$\Rightarrow 0 < \frac{1}{x} < 4 \Rightarrow 0 < 1 < 4x \Rightarrow \frac{1}{4} < x$

ب) $\frac{x-2}{2x+1} > 1 \Rightarrow \frac{-x-3}{2x+1} > 0 \Rightarrow \frac{-3 \quad -\frac{1}{2}}{- \; + \; -} \Rightarrow (-3, -\frac{1}{2})$

$\frac{x-2}{2x+1} < -1 \Rightarrow \frac{3x-1}{2x+1} < 0 \Rightarrow \frac{-\frac{1}{2} \quad \frac{1}{3}}{+ \; - \; +} \Rightarrow (-\frac{1}{2}, \frac{1}{3})$

$\Rightarrow x \in (-3, \frac{1}{3}) - \{-\frac{1}{2}\}$

۳)

$\alpha - \beta < x < \alpha + \beta$ $\quad x^2 < x + 6 \Rightarrow x^2 - x - 6 < 0 \Rightarrow (x-3)(x+2) \; \frac{-2 \quad 3}{+ \; - \; +}$

$x^2 > -x - 6 \Rightarrow x^2 + x + 6 > 0 \Rightarrow \Delta < 0 , a > 0$

$\left.\begin{array}{l}\alpha - \beta = -2 \\ \alpha + \beta = 3\end{array}\right\} \Rightarrow 2\alpha = 1 \Rightarrow \boxed{\alpha = \frac{1}{2}}$

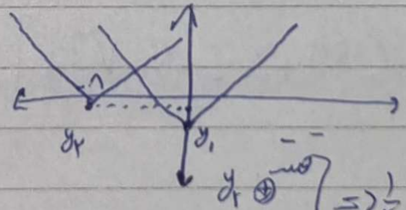
۴)

	-1	0	2	
1	$2x+3$	$-2x+3$	-1	
	1	3 (Max)	-1 (Min)	

$|3 + (-1)| = 2$

۵)

$y_2 = \left|\frac{1}{2}x + 4\right| - 1 \quad y_1 = \left|\frac{1}{2}x\right| - 2 \Rightarrow$



$\left.\begin{array}{l} y_2 \oplus \\ y_1 \ominus \end{array}\right\} \Rightarrow \frac{1}{2}x + 4 - 1 = -\frac{1}{2}x - 2 \Rightarrow \boxed{x = -5}$

۶)

الف) تابع گلوانی

	-4	1
$\lvert 2x+3 \rvert - 5$		$-2x-3$

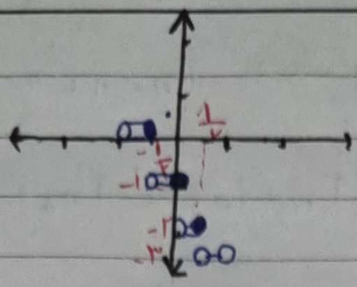
$R_f = \{x \mid x \in \mathbb{Z} , x \geq -5\}$

ب) $x\left[1 + \frac{1}{x}\right] = \frac{1}{x} - \left[\frac{1}{x}\right] + 1 \Rightarrow 4 - [4] + 1$

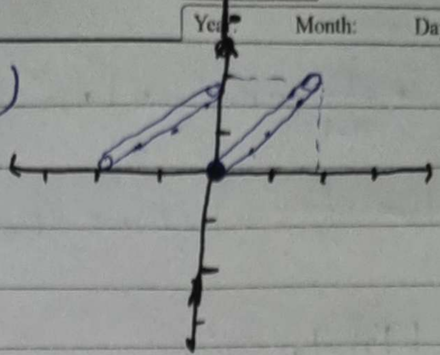
$\Rightarrow R_f = [1, 2)$

۷)

الف)

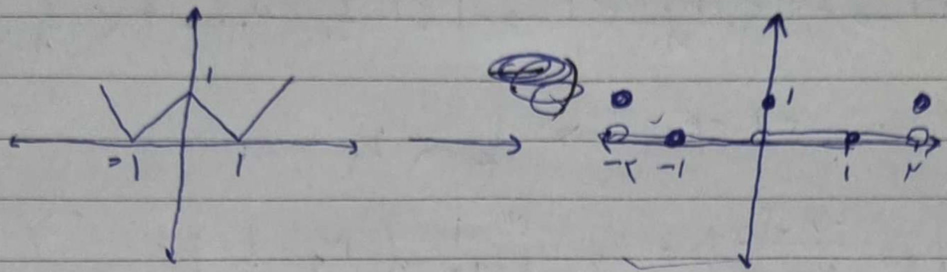


ب)

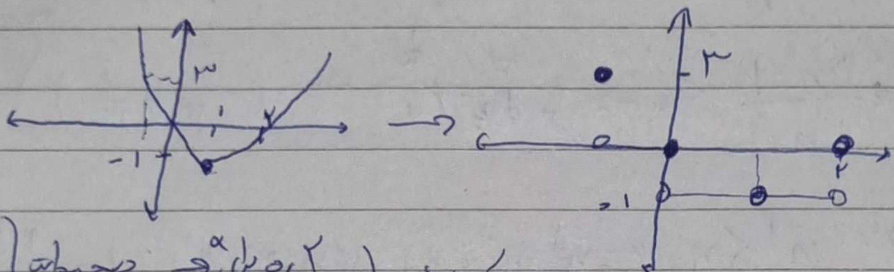


۸)

الف)



ب)



۹)

[b] صحیح ← ۲،۵ برای a

[a] صحیح است ← ۲،۴ برای b

درس و ۱/۲ نامش

$\rightarrow a = ۱،۲ \quad b = ۳،۴$

$\rightarrow a + b = ۴،۶$

۱۰)

$$[(1+\sqrt{2})^6] = [198 - (1-\sqrt{2})^6] = [198 - (\underbrace{1 - 3\sqrt{2} + 6 - 2\sqrt{2}}_{7-5\sqrt{2}})^2]$$

$$= [198 - (49 + 50 - 70\sqrt{2})] = [99 + 70\sqrt{2}] = 99 + [98,\ldots] = 99,98$$

$$= 197$$