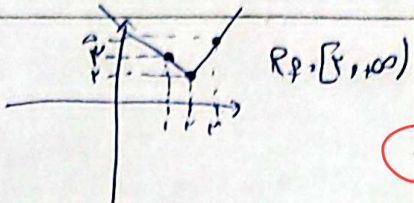
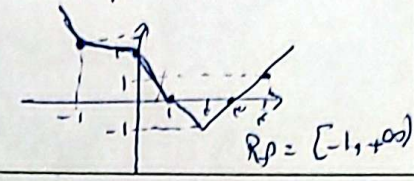


18, 25

نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ۷ کلاس:
 نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ۷ کلاس:

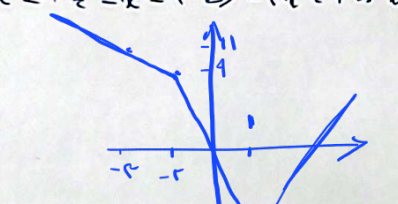
الف) $y = x + |2x - 5| \Rightarrow y = \begin{cases} 3x - 5 & x > \frac{5}{2} \\ -x + 5 & x \leq \frac{5}{2} \end{cases}$ 

ب) $y = |x - 2| + |x - 1| - |x| = 0 \Rightarrow \begin{cases} x < 0 & -x + 3 \\ 0 \leq x < 1 & -2x + 3 \\ 1 \leq x < 2 & -x + 1 \\ x \geq 2 & x - 3 \end{cases}$ 

5

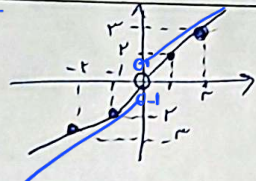
$|3x - 3| - |x + 2| = k$

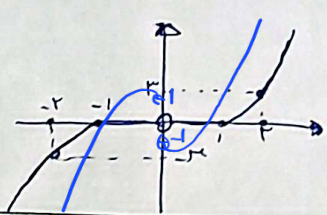
$3x - 3 = -x - 2 \Rightarrow -2x = 1 \Rightarrow x = -\frac{1}{2} \Rightarrow (3(-\frac{1}{2}) - 3) - (-\frac{1}{2} + 2) = 0 \Rightarrow k = 0$



$k = -3$

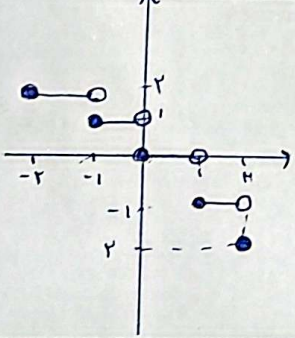
1

الف) $y = x + \frac{x}{|x|} \Rightarrow \begin{cases} x < 0 & y = x - 1 \\ x > 0 & y = x + 1 \end{cases}$ 

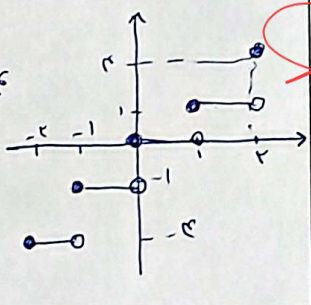
ب) $y = x|x| - \frac{x}{|x|} \Rightarrow \begin{cases} x < 0 & y = -x^2 + 1 \\ x > 0 & y = x^2 - 1 \end{cases}$ 

1

الف) $y = [x] - 2x$

$\begin{cases} -2 \leq x < -1 \Rightarrow y = 2 \\ -1 \leq x < 0 \Rightarrow y = 1 \\ 0 \leq x < 1 \Rightarrow y = 0 \\ 1 \leq x < 2 \Rightarrow y = -1 \\ x = 2 \Rightarrow y = 2 \end{cases}$ 

ب) $y = [x] |x|$

$\begin{cases} -2 \leq x < -1 \Rightarrow y = -6 \\ -1 \leq x < 0 \Rightarrow y = -1 \\ 0 \leq x < 1 \Rightarrow y = 0 \\ 1 \leq x < 2 \Rightarrow y = 1 \\ x = 2 \Rightarrow y = 4 \end{cases}$ 

5

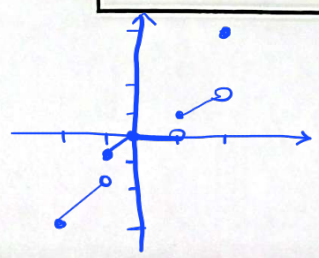
الف) $y = 3x - [x] \Rightarrow R_f = [0, 1)$

ب) $y = 4x - 5[x] \Rightarrow y = 5(x - [x]) \Rightarrow R_f = [0, 5)$

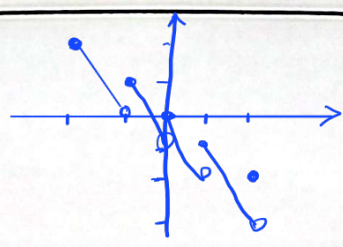
ج) $y = x - \omega\left[\frac{x}{\omega}\right] \Rightarrow y = \omega\left(\frac{x}{\omega} - \left[\frac{x}{\omega}\right]\right) \Rightarrow R_f = [0, \omega)$

د) $y = [2x] - 2x \Rightarrow 2x \in [r_2] \Rightarrow [r_2] - 2x \leq 0 \Rightarrow R_f = (-1, 0]$

5



(ب)



(الف)

ا) $y = P \sin x + R \cos x \Rightarrow -\sqrt{P^2 + R^2} \leq P \sin x + R \cos x \leq \sqrt{P^2 + R^2} \Rightarrow R_f \in [-\sqrt{r}, \sqrt{r}]$

c) $y = r \sin \alpha - r \cos \alpha \in [-\sqrt{2}, \sqrt{2}] \Leftrightarrow r \sin \alpha - r \cos \alpha \in [-\sqrt{2}, \sqrt{2}] \Leftrightarrow r \in [-\sqrt{2}, \sqrt{2}]$ für $\alpha \in [-\omega, \omega]$

2) $y_2 = [r \sin x + w \cos x] \Rightarrow -\sqrt{19} [r \sin x + w \cos x] (\sqrt{19})^2 [r \sin x + w \cos x] =$
 $R_f = \{-y, -z, -d, -v, -r, -l, -o, -i, -t, -e, -w\}$

2) $y_2(\cos \alpha - r \sin \alpha)$, $\frac{d}{dt} = \frac{dr}{dt}$
 $R = [0, \sqrt{\omega}]$

الف) $y = 2 \sin \alpha + 3 \sin \alpha + r$ $\begin{cases} \sin \alpha = 1 \rightarrow f(1) = 4 \text{ max} \\ \sin \alpha = -1 \rightarrow f(-1) = 0 \text{ min} \end{cases}$ $R_f = [0, 4]$
 $\sin \alpha = \frac{b}{ra} = \frac{r}{r} \Rightarrow 0 \leq \sin \alpha \leq 1$

ب) $y = r \sin^2 \alpha + r \sin \alpha + r$
 $R_f = \left[\frac{v}{\lambda}, v \right]$

$$\text{و) } y = \sin^k x + r \cos^k x \Rightarrow y = \sin^k x + r(-\sin^k x + 1) \Rightarrow y = -r \sin^k x + r$$

$$-1 \leq \sin x \leq 1 \Rightarrow R_f = [1, r] \quad \text{cos}$$

$$u) y_c = \frac{r \cot \alpha}{1 + \cot^2 \alpha} \Rightarrow y_c = \frac{r \cot \alpha}{\frac{1}{\sin^2 \alpha}} \stackrel{\cos}{=} r \cos \alpha \sin \alpha = r \times \left(\frac{1}{r} \sin r \alpha \right) = \sin r \alpha$$

الف) $y = \sin^4 x + \cos^4 x = 0$ $\frac{1}{e} \leq \sin^4 x + \cos^4 x \leq 1 \Rightarrow R_f = \left[\frac{1}{e}, 1 \right]$

c) $y = [\sin^2 x + \cos^2 x] \Rightarrow \frac{1-x}{1} (\sin^2 x + \cos^2 x \leq 1) \Rightarrow [\sin^2 x + \cos^2 x] = \int_1^0$

$\{0, 1\} \leftarrow \mathcal{R}_f = [0, 1]$

$$\text{الف) } y = \frac{2x^2 + \sqrt{x} - 1}{x+1} = \frac{x^2 + \sqrt{x} - 1}{x+1} = \frac{(x-1)(x+1)}{x+1}, \quad x \neq -1, \quad y = x-1 \text{ if } x \neq -1, y \neq -2$$

$R_f = \mathbb{R} - \{-2\}$

$$c) y = \frac{x^k - 1}{x - 1} = \frac{(x-1)(x^{k-1} + x^{k-2} + \dots + x + 1)}{x-1} = x^{k-1} + x^{k-2} + \dots + x + 1 \quad \left\{ \begin{array}{l} \text{if } k=1 \quad y = x \\ \text{if } k=2 \quad y = x^2 + x + 1 \end{array} \right.$$

