

نام و نام خانوادگی پاسخنامه تشریحی تکلیف شماره ... کلاس ...

الف) $\frac{x+1}{x-2}$ $x > 0$ $\frac{-x+1}{-2-x}$ $x < 0$ $R_f = \mathbb{R} - (-\frac{1}{2}, 1]$	ب) $x + \frac{1}{x}$ $x > 0$ $-(x + \frac{1}{x})$ $x < 0$ $R_f = [2, +\infty)$	1
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$xy + y^2 = x^2 + 2x - 2 \rightarrow x^2 + (2-y)x - (2+y^2) = 0 \rightarrow \Delta \geq 0$
 $(2-y)^2 + 4(2+y^2) \geq 0 \rightarrow (y+4)(y+2) \geq 0 \rightarrow R_f = \mathbb{R} - (-4, -2)$

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$\frac{(x - \frac{1}{2})^2}{(x - \frac{1}{2})^2 + \frac{3}{2}}$ $(x - \frac{1}{2})^2 = t$ $\frac{t}{t + \frac{3}{2}}$ $\begin{matrix} t=0 \rightarrow f(x)=0 \\ t=+\infty \rightarrow f(x)=1 \end{matrix}$ $R_f = [0, 1]$

$D_f = \mathbb{R}$

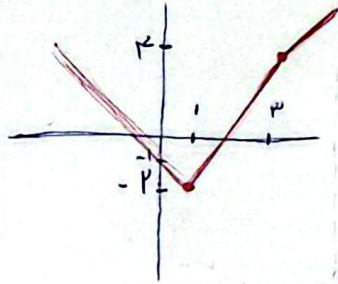
3

الف) $x_s = -\frac{b}{2a} = 2$ $y_s = 3$ $(-\infty, 3] \xrightarrow{\sqrt{\quad}} R_f = [0, \sqrt{3}]$	$\rightarrow x_s = -\frac{b}{2a} = 2$ $y_s = -1$ $[-1, +\infty) \xrightarrow{\sqrt{\quad}} R_f = [-2, +\infty)$	4
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$R = [0, +\infty)$ $R_f = (-\infty, +\infty)$ $\lim_{x \rightarrow 0^+} (x^2 - x + 1) = 1$ هونگا ستم به سمت $-\infty$ میل می کند	$\lim_{x \rightarrow 0^+} (x + \frac{1}{x})$ $(-\infty, -2] \cup [2, +\infty) \xrightarrow{\lim_{x \rightarrow 0^+}} R_f = [1, +\infty)$	5
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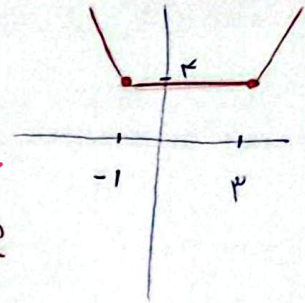
$$الف) \begin{cases} x+1 & x > 2 \\ y & 3x-5 & 1 < x < 2 \\ & -x-1 & x < 1 \end{cases}$$

$$R_f = [-2, +\infty)$$



بـ)

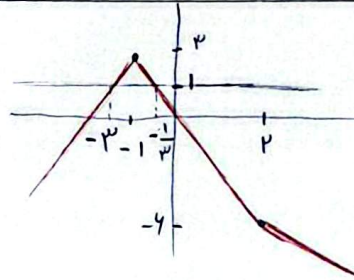
$$R_f = [2, +\infty)$$



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$$\begin{cases} -x-2 & x > 2 \\ -3x & -1 < x < 2 \\ x+2 & x \leq -1 \end{cases}$$

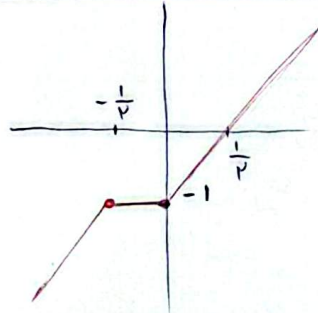


$$R = (-2, -\frac{1}{3})$$

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$$\begin{cases} 2x-1 & x > 0 \\ -1 & -\frac{1}{2} < x < 0 \\ x+1 & x < -\frac{1}{2} \end{cases}$$

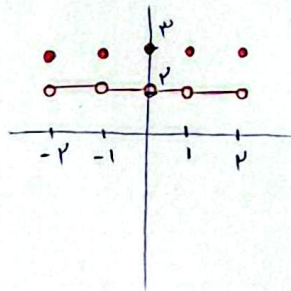


$$R_f = \mathbb{R}$$

2

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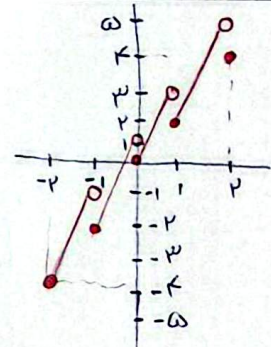
$$الف) y = \begin{cases} 2 & x \in \mathbb{Z} \\ 1 & x \notin \mathbb{Z} \end{cases}$$



$$R_f = \{1, 2\}$$

$$\Rightarrow \begin{cases} (2x-1) & x \geq 2 \\ (2x-1) & 1 < x < 2 \\ (2x) & 0 < x < 1 \\ (2x+1) & -1 < x < 0 \\ (2x+1) & x < -1 \end{cases}$$

$$R_f = [-1, +\infty)$$



2

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$$الف) \sin x \begin{cases} \frac{1}{2} & x \in [0, \frac{\pi}{2}] \\ \frac{1}{2} & x \in [\frac{3\pi}{2}, 2\pi] \end{cases}$$

$$R_f = [\frac{\pi}{6}, \frac{5\pi}{6}]$$

$$\Rightarrow \sin^2 x \begin{cases} \frac{1}{2} & x \in [0, \frac{\pi}{2}] \\ \frac{1}{2} & x \in [\frac{3\pi}{2}, 2\pi] \end{cases}$$

$$R_f = [1, 2]$$

1, 2

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