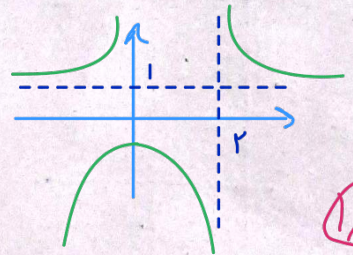
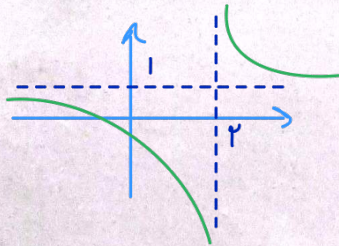


الف) $x > 0 \rightarrow \frac{x+1}{x-2}$

$x < 0 \rightarrow \frac{-x+1}{-x-2} = \frac{x-1}{x+2}$



(۱، ۵)

$R = (-\infty, -\frac{1}{2}] \cup [1, +\infty)$

اینو در آوردی بعد تو ببر ندانستی

شماره درست در ورودی

صفت استباده

صفحه آخر...

ب) $\frac{x^2+1}{|x|}$

↓

$|x| + \frac{1}{|x|} \rightarrow [2, +\infty) = R$

$\frac{x^2+x-1}{x+1} = x-1 + \frac{1}{x+1} \rightarrow t=x+1 \rightarrow t-1 + \frac{1}{t} = y \rightarrow y-1 = t + \frac{1}{t}$

$R = (-\infty, -1] \cup [-1, +\infty)$

$(-\infty, -1] \cup [1, +\infty)$

$$D_f = x^2 - x + 1 \rightarrow \Delta < 0 \rightarrow D = \mathbb{R} \checkmark$$

(2) - 12

$$R_f \Rightarrow \frac{(x - \frac{1}{f})^2}{(x - \frac{1}{f})^2 + \frac{1}{f}} = \frac{t}{t + \frac{1}{f}} = y \rightarrow y t + \frac{1}{f} y = t \rightarrow t = \frac{\frac{1}{f} y}{1 - y}$$

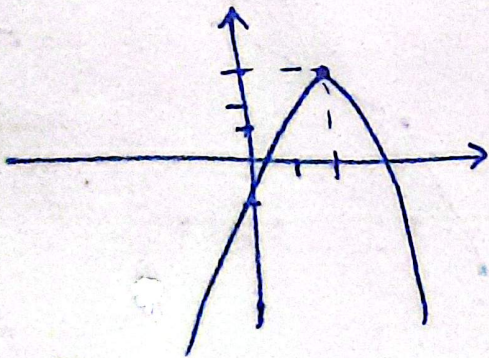
$$x = \pm \sqrt{\frac{\frac{1}{f} y}{1 - y}} + \frac{1}{f}$$

$$\frac{\frac{1}{f} y}{1 - y} \geq 0 \rightarrow \frac{0}{-0 + 0} -$$

$$[0, 1] = R_f$$

ii) $-x^2 + x - 1 = y \rightarrow \text{ext} \left| \begin{array}{l} \frac{-b}{2a} = \frac{-1}{-2} = \frac{1}{2} \\ -1 + \frac{1}{2} - 1 = -\frac{3}{2} \end{array} \right.$

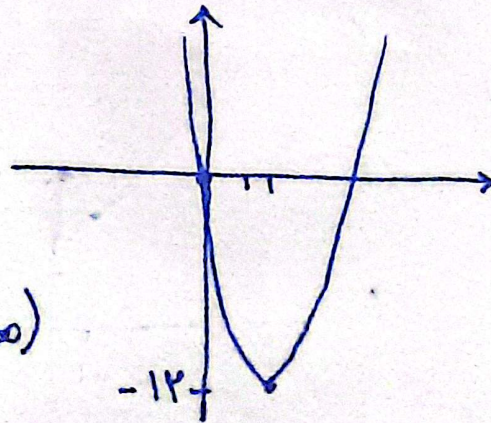
(2) - 12



$$R_f = (-\infty, \frac{1}{f}] \xrightarrow{\sqrt{\quad}} [0, \sqrt{\frac{1}{f}}] = R_f$$

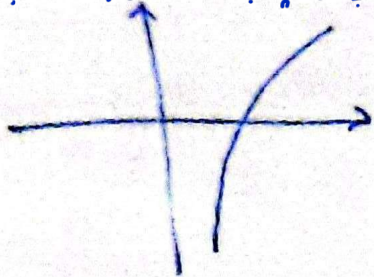
iii) $\sqrt{1 - x^2} \rightarrow \text{ext} \left| \begin{array}{l} \frac{-b}{2a} = \frac{0}{2} = 0 \\ 1 - 0 = 1 \end{array} \right.$

$$R_f = [-1, +\infty) \xrightarrow{\sqrt{\quad}} [-1, +\infty)$$



۵- (۵,۰)

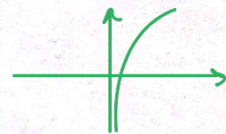
همیشه مثبت $\Delta < 0 \rightarrow$ ~~$\Delta > 0$~~
 چون چندجمله‌ای از مرتبه فرد به بردش $\mathbb{R}$ می‌رسد
 (درجه ۳ نه دلخواه!!!)



$\rightarrow \mathbb{R} = R_f$

برد توابع چندجمله‌ای از مرتبه فرد برابر $\mathbb{R}$ می‌باشد:

$R_g = \lg(-\infty, +\infty) = \lg(0, +\infty) = (-\infty, +\infty) = \mathbb{R}$

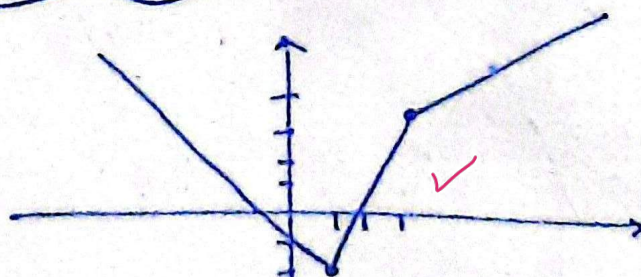
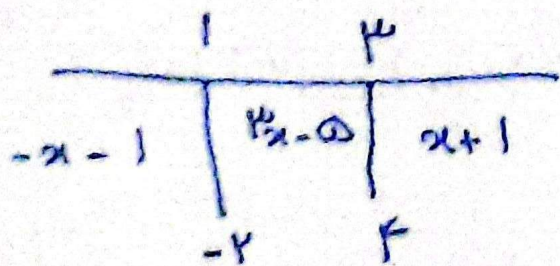


ب) $\frac{x^2+1}{x} > 0 \rightarrow x + \frac{1}{x} > 0 \rightarrow (2, +\infty) \xrightarrow{\lg} (1, +\infty) = R_f$
 (دانش حساب کروی به)

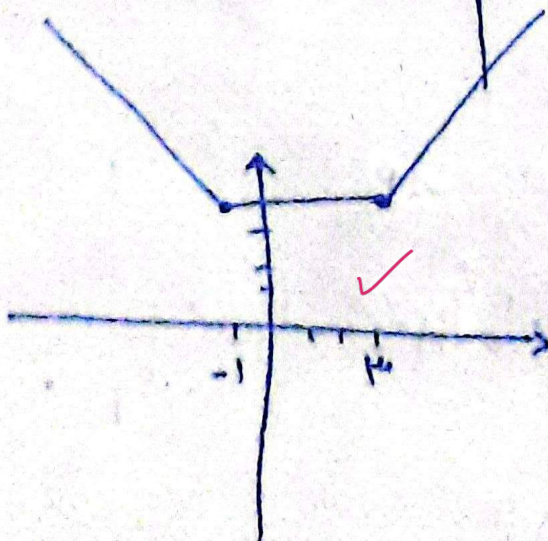
ب) $\frac{n^2+1}{n} = n + \frac{1}{n} \xrightarrow{\substack{\alpha + \frac{1}{\alpha} \geq 2 \\ \alpha + \frac{1}{\alpha} \leq -2}} R = (-\infty, -2] \cup [2, +\infty)$
 چون متقارن بود پس $\lg$ نیست اصلاً!

$\xrightarrow{\lg} R_g = [1, +\infty)$

۶- (۲)



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



ب) تابع گسسته $\rightarrow$

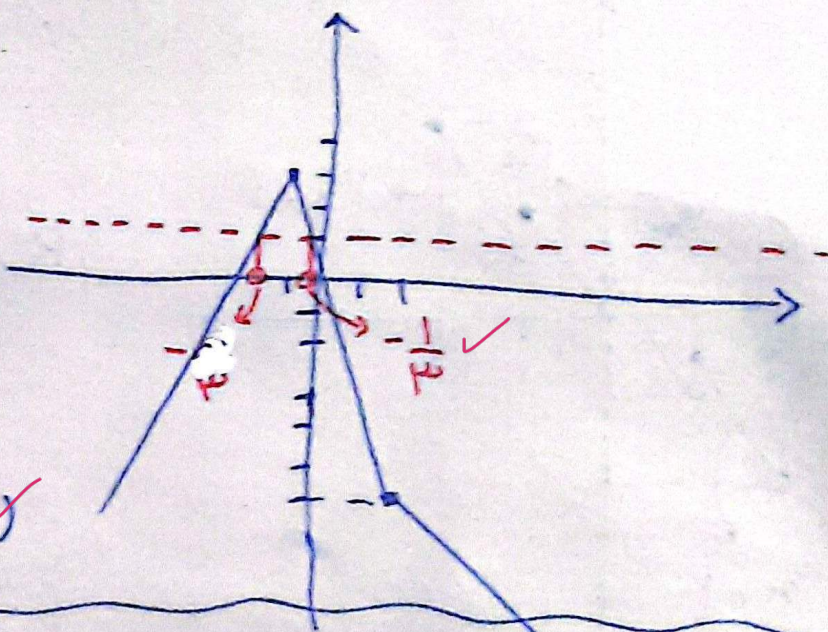
$R_f = [2, +\infty)$

$$\begin{array}{c|c|c} -1 & & p \\ \hline x+p & -px & -x-p \\ \hline p & & -p \end{array}$$

$$-px = 1 \rightarrow x = -\frac{1}{p}$$

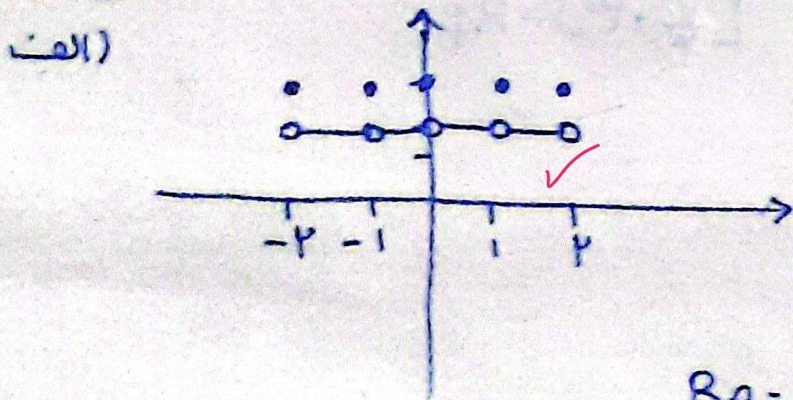
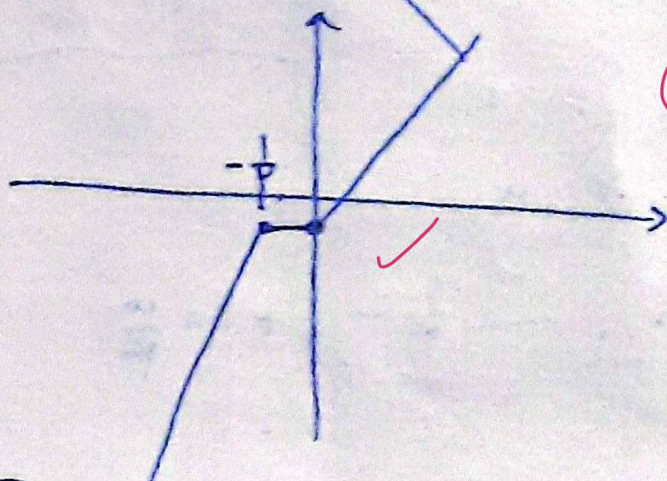
$$x+p = +1 \rightarrow x = -p$$

$$R_f = (-\infty, -\frac{1}{p}] \cup [-p, +\infty)$$



$$\begin{array}{c|c|c} -\frac{1}{p} & & 0 \\ \hline px+1 & -1 & px-1 \\ \hline -1 & & -1 \end{array}$$

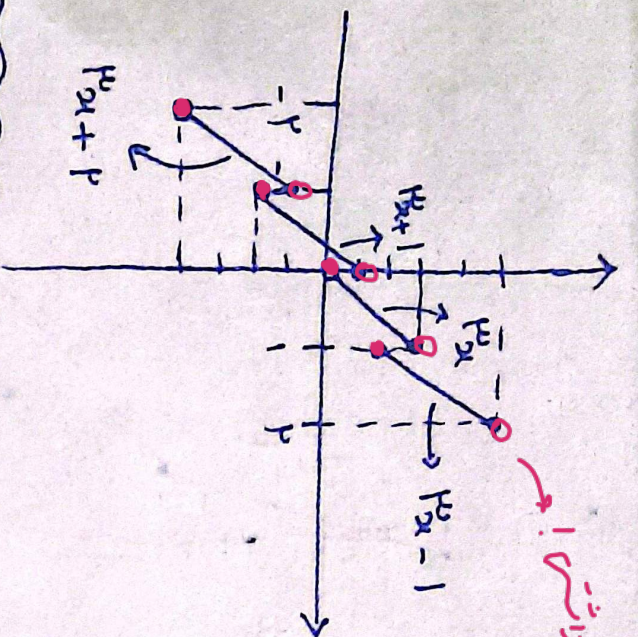
$$R_f = \mathbb{R}$$



$$R_f = \{p, p\}$$

$$R_f \begin{cases} x \in \mathbb{Z} \rightarrow R_f = p \\ x \notin \mathbb{Z} \rightarrow R_f = \emptyset \end{cases}$$

$$R_f = \{p, p\}$$



$$P = \frac{1}{2} \rho v^2$$

برگشتن از دانش!

1-1 الف

1-1-17

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 $\tau-$
 $\downarrow$
 $\tau-$
 $"$
 $\tau-$
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⑦

10

2-1-17

$$[1, 2, 3] = R_4$$

100

$$\frac{-b}{2a} = \frac{-1}{-2} = \frac{1}{2}$$

۱- کتب و مجلات

ایضاً

$$\text{الف } \square = |x| \rightarrow \begin{cases} |x| = 0 \rightarrow y = -\frac{1}{2} \\ |x| = +\infty \rightarrow y = 1 \end{cases} \xrightarrow[\text{مفردته}]{\text{محدوده میانه}} R_y = (-\infty, -\frac{1}{2}] \cup (1, +\infty)$$