

17, 18

باران صید شاه و لایسی - شیاره کلف: 5 - دوازدهم دفتر B

الف) $\frac{|n|+1}{|n|-2} > y \rightarrow |n| > \frac{-2y-1}{y-1} \Rightarrow |n| = \frac{2y+1}{y-1}$

(2) -1

$\frac{2y+1}{y-1} \geq 0 \Rightarrow \frac{-\infty - \frac{1}{2} + \infty}{+\frac{1}{2} - \frac{1}{2} +} \Rightarrow R = (-\infty, -\frac{1}{2}] \cup (1, +\infty)$

ب) $y = \frac{n^2+1}{|n|} \Rightarrow y \geq |n| + \frac{1}{|n|} \xrightarrow{|n| > 0} R = [2, +\infty)$
 ملاحظه: $n + \frac{1}{n}$

$y^2 + 2y = n^2 + 2n - 2 \Rightarrow n^2 + (2-y)n - 2 - 2y = 0 \Rightarrow n = \frac{-(2-y) \pm \sqrt{(2-y)^2 - 4(-2-2y)}}{2}$
 $\Delta = (2-y)^2 - 4(-2-2y)$

(2) -2

$(2-y)^2 - 4(-2-2y) \geq 0 \rightarrow y^2 + 4y + 12 \geq 0 \Rightarrow \frac{-\infty - 2 + \infty}{+\frac{1}{2} - \frac{1}{2} +} \Rightarrow R = (-\infty, -4] \cup [-2, +\infty)$

$n^2 - n + 1 \rightarrow \Delta < 0 \Rightarrow D_f = \mathbb{R}$
 فاقد ریشه

(2) -3

$\frac{(n-\frac{1}{2})^2}{n^2 - n + 1} \xrightarrow[n \rightarrow +\infty]{\substack{n \rightarrow \frac{1}{2} \\ \min}} 0$
 $\xrightarrow[n \rightarrow +\infty]{\max} \frac{n^2 - n + 1 - \frac{1}{4}}{n^2 - n + 1} \xrightarrow{n \rightarrow +\infty} 1 - \frac{\frac{1}{4}}{+\infty} = 1 \Rightarrow [0, 1) = R$

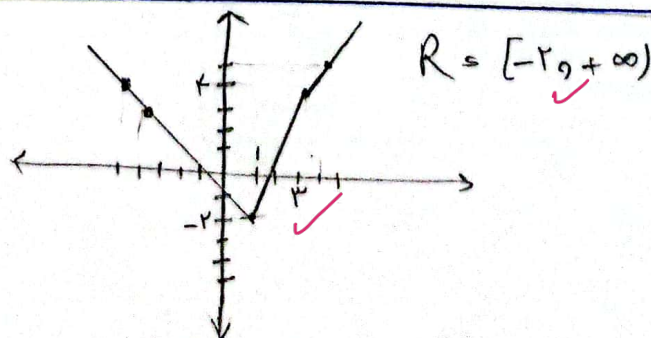
الف) $\frac{|x|}{\mu} \Rightarrow (-\infty, \mu] \xrightarrow{\text{جزء}} R = [0, \sqrt{\mu}]$
 ب) $\frac{|x|}{-1} \Rightarrow R = [-2, +\infty)$

(2) -4

الف) $n^3 - n + 18 > 0 \Rightarrow (-\infty, +\infty)$
 همیشه مثبت؟
 $R = \mathbb{R}$

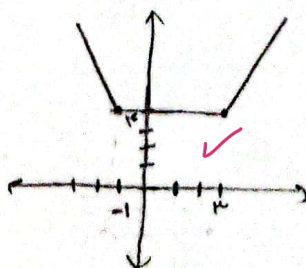
ب) $D_f \Rightarrow \frac{n^2+1}{n} > 0 \rightarrow \frac{-\infty - \frac{1}{2} + \infty}{-\frac{1}{2} +} \Rightarrow D_f = (0, +\infty) = \mathbb{R}$
 صفحه آخر...
 (17, 18)

الف) $n=1 \rightarrow -2$
 $n=3 \rightarrow 4$
 $n=-\infty \rightarrow 4$
 $n=4 \rightarrow \infty$

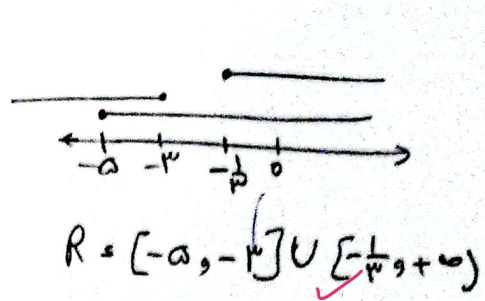


(2) -5

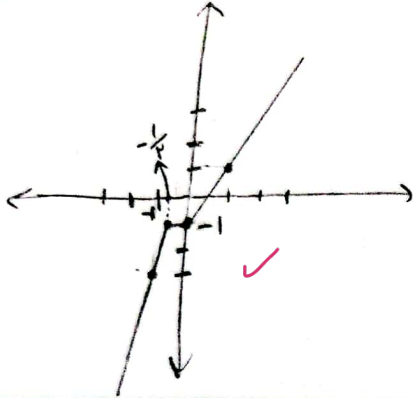
ب) $n=3 \rightarrow 4$
 $n=-1 \rightarrow 4$
 $R = [4, +\infty)$



$$\begin{array}{|c|c|c|}
 \hline
 -\infty & -1 & 1 & +\infty \\
 \hline
 -x+1+x+1 \leq 1 & -x+1-x-1 \leq 1 & x-1-x-1 \leq 1 \\
 x \leq -3 & x \geq -\frac{1}{3} & -\infty \leq x \\
 \hline
 \end{array}$$



(2) -V

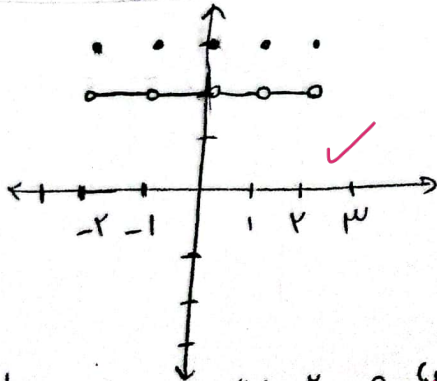


$$\begin{cases}
 x=0 \rightarrow -1 \\
 x=-\frac{1}{3} \rightarrow -1 \\
 x=-1 \rightarrow -3 \\
 x=1 \rightarrow 1
 \end{cases}$$

$R = \mathbb{R}$

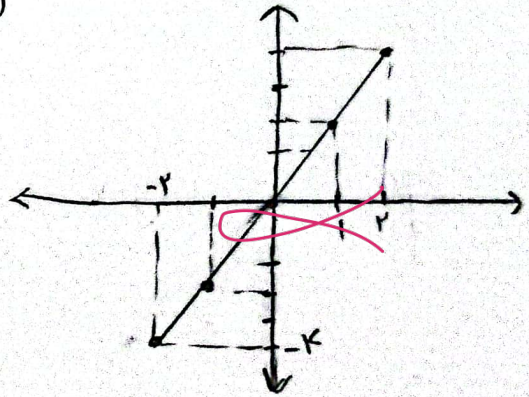
(2) -1

الف)



$\frac{0 \leq -1}{[x] + [-x] + 3} \begin{matrix} -1 & 1-1=2 \\ +0 & 3+0=3 \end{matrix} \Rightarrow R = \{1, 3\}$

ب)



(1) -9

الف) $y = \sin^2 x - \sin x + 1$

$\sin x = 1 \rightarrow 1$
 $\sin x = -1 \rightarrow 3 \Rightarrow R = [\frac{1}{4}, 3]$

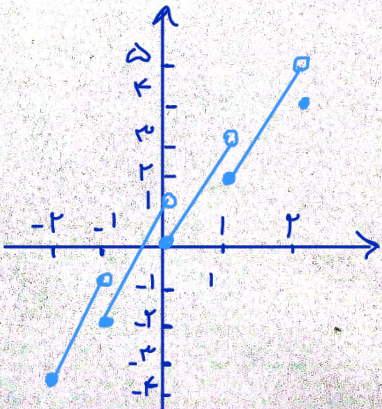
$-\frac{b}{2a} \rightarrow \sin x = \frac{1}{2} \rightarrow \frac{1}{4}$

ب) $y = \sin^2 x + \sin x + 1$

$\sin^2 x = 1 \rightarrow 3$
 $\sin^2 x = 0 \rightarrow 1 \Rightarrow R = [1, 3]$

$-\frac{b}{2a} \rightarrow \sin^2 x = -\frac{1}{2} \text{ (no solution)}$

(2) -10

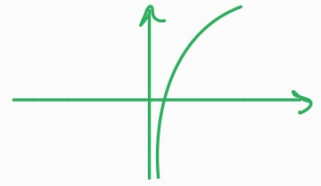


(1) -9

$R_y = [-1, \infty)$

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

$$R_f = \text{lg}(-\infty, +\infty) = \text{lg}(0, +\infty) = (-\infty, +\infty) = \boxed{\mathbb{R}}$$



$$\text{ب) } \frac{n^2+1}{n} = n + \frac{1}{n} \xrightarrow[\alpha + \frac{1}{\alpha} \leq -2]{\alpha + \frac{1}{\alpha} \geq 2} R = (-\infty, -2] \cup [2, +\infty)$$

چون متقارن بودیم

لگ برت است اصلاً!

$$\xrightarrow{\text{lg}_r} R_f = [1, +\infty)$$