

۱۸۴۵

طالع نامه در قسم کرده

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الف) $y = n^2 - 2n^2 + 2n = (n-1)^2 + 1 \Rightarrow y-1 = (n-1)^2 \Rightarrow \sqrt[2]{y-1} = n-1$

$n = \sqrt[2]{y-1} + 1 \quad R_f = \mathbb{R}$

ب) $y = \frac{1}{n^2 - 2n} \Rightarrow \frac{1}{y} = n^2 - 2n \Rightarrow n^2 - 2n - \frac{1}{y} = 0 \Rightarrow n = \frac{2 \pm \sqrt{4 - 4(-\frac{1}{y})}}{2}$

$\Rightarrow 4 + \frac{4}{y} \geq 0 \Rightarrow \frac{4}{y} \geq -4 \Rightarrow \frac{y+1}{y} \geq 0 \Rightarrow \boxed{y > 0} \quad R_f = (-\infty, -1] \cup (0, +\infty)$

الف) $n^2 - 2n + 1 = 0 \Rightarrow \frac{-b}{2a} = \frac{2}{2} = 1 \quad y_s = 4 - 2 + 1 = 3 \quad R = [3, +\infty)$

ب) $y = -n^2 + 4n + 3 \Rightarrow n_s = \frac{-b}{2a} = \frac{-4}{-2} = 2 \quad y_s = 12 \quad R = (-\infty, 12]$

ج) $y = \sqrt{n^2 - 4n - 4} \Rightarrow n_s = \frac{4}{2} = 2 \quad y_s = -4 \quad \sqrt{[-4, +\infty)} = [0, +\infty)$

د) $y = \sqrt{4n - n^2} \Rightarrow n_s = \frac{-4}{-2} = 2 \quad y_s = 4 \quad \sqrt{(-\infty, 4]} \Rightarrow R = [0, 4]$

الف) $R_f = \mathbb{R}$ ب) $R_f = \mathbb{R}$ ج) $[0, +\infty)$ د) $R_f = [0, +\infty)$

الف) $y = \frac{3n+1}{n-2} \Rightarrow \mathbb{R} - \{2\}$ ب) $y = \frac{2n+1}{n+1} \Rightarrow \mathbb{R} - \{2\}$

الف) $y = \sqrt{\frac{2n+4}{n+1}} \Rightarrow [0, +\infty) - \{2\} = R_f$ ب) $y = \sqrt{\frac{3n+1}{-n+2}} \Rightarrow R_f = [0, +\infty)$

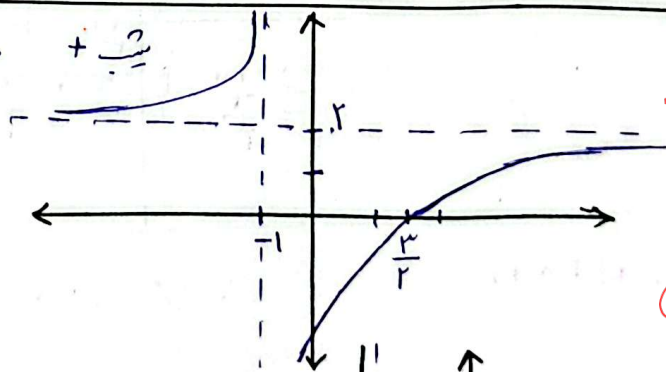
الف) $y = \frac{2n-3}{n+1} \Rightarrow \frac{a^2}{(n+1)^2} > 0 \quad + \frac{2}{n+1}$

میان محور و -1

$2n-3=0$

میان 2 و 3

$\Rightarrow n = \frac{3}{2}$



ب) $y = \frac{2n-1}{n+2} \Rightarrow$

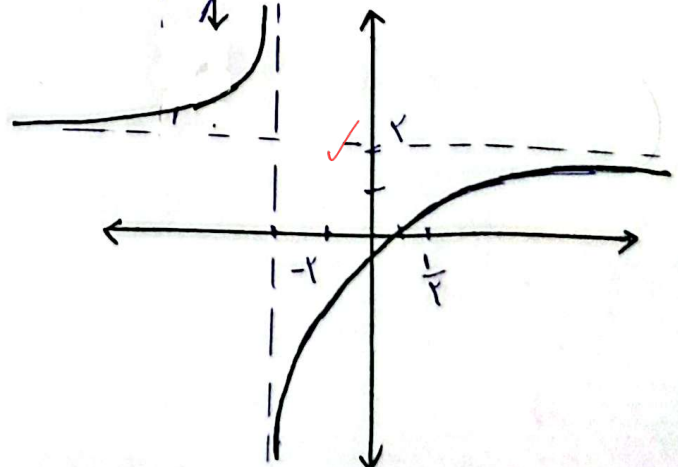
میان 2 و 3

$2n-1=0$

میان 2 و 3

$n = \frac{1}{2}$

$\frac{4 - (-1)}{(n+2)^2} = \frac{5}{(n+2)^2} > 0 \quad + \frac{2}{n+2}$



الف) $(-\infty, -2] \cup [2, +\infty) = R_f$ ب) $x^2 + \frac{1}{x^2} \Rightarrow R_f = (-\infty, -2] \cup [2, +\infty)$

ج) $\frac{\sqrt[3]{x^2}}{\sqrt[3]{x}} + \frac{1}{\sqrt[3]{x}} = \sqrt[3]{x} + \frac{1}{\sqrt[3]{x}} \Rightarrow R_f = (-\infty, -2] \cup [2, +\infty)$

د) $[2, +\infty) = R_f$

الف) $y = x^2 + \frac{1}{x^2+2} \Rightarrow x^2 = t \quad t + \frac{1}{t+2} = y \quad t \geq 0$ میزان حالت $t=0$

$t=0 \rightarrow 0 + \frac{1}{0+2} = \frac{1}{2} \quad R_f = [\frac{1}{2}, +\infty)$

ب) $y = \frac{x^2+5}{\sqrt{x^2+2}} \Rightarrow \sqrt{x^2+2} = t \quad t \geq 2 \Rightarrow \frac{t^2+1}{t} = \frac{5+(t^2-4)}{t} = y$

$\Rightarrow -4+t^2 = x^2$

$t + \frac{1}{t} = y, t \geq 2$

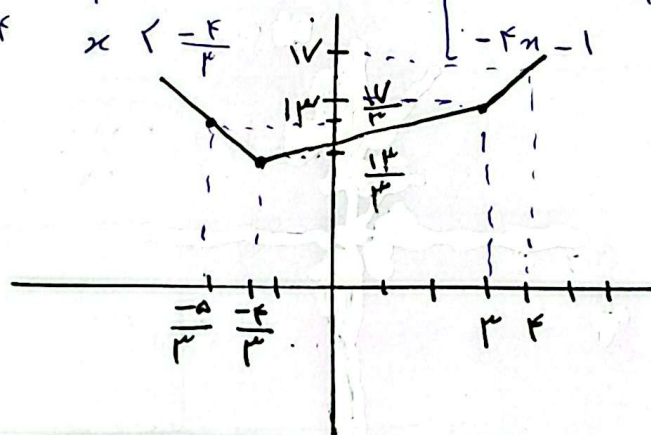
$R_f = [2, +\infty)$

$R = [\frac{5}{2}, +\infty)$

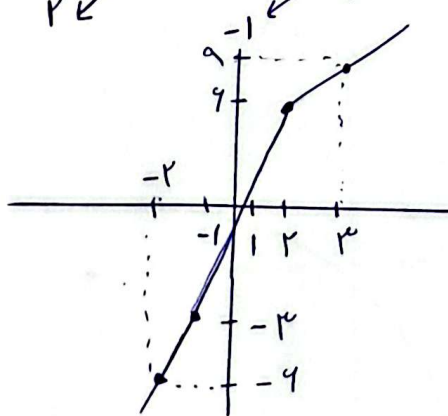
$\frac{5}{2} = y \Leftarrow t=2$

$y = |x-2| + |2x+2|$

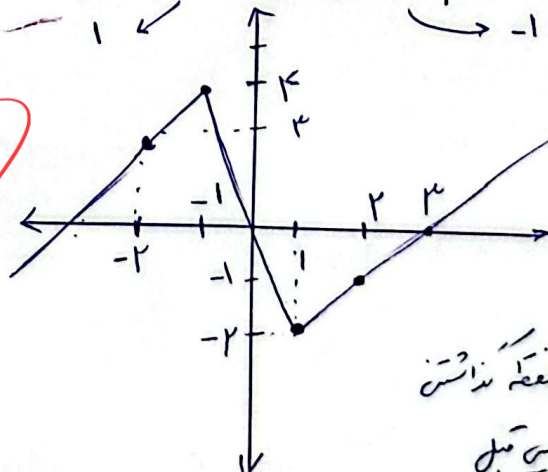
$y = \begin{cases} x-2+2x+2 & x > 2 \\ 2+2x-x+2 & -\frac{2}{3} \leq x \leq 2 \\ -x+2-2x-2 & x < -\frac{2}{3} \end{cases} \quad y = \begin{cases} 3x & x > 2 \\ 2x+4 & -\frac{2}{3} \leq x \leq 2 \\ -3x-1 & x < -\frac{2}{3} \end{cases}$



$y = |x-2| + |2x+2|$



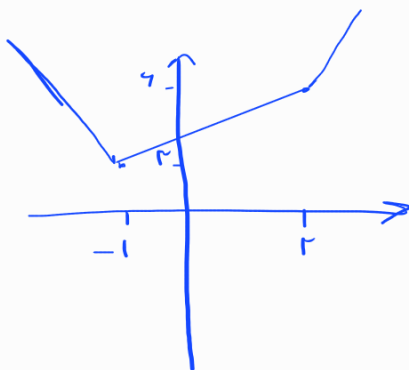
ب) $y = |2x-2| - |x+1|$



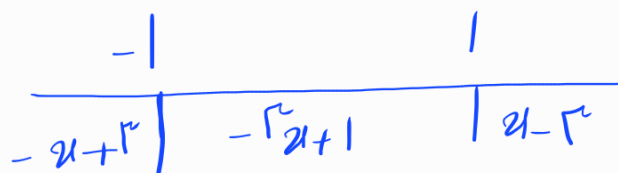
میزان بیشینه و کمینه را پیدا کنید



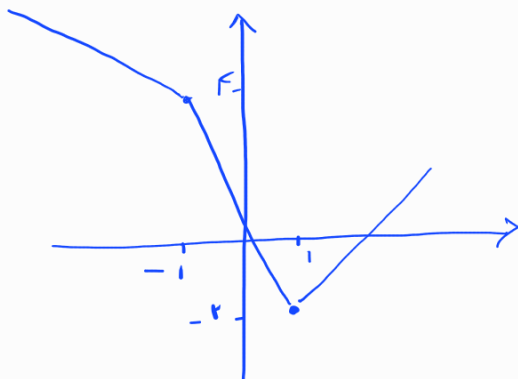
$$R = [1, +\infty)$$



1. a)



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



1. b)