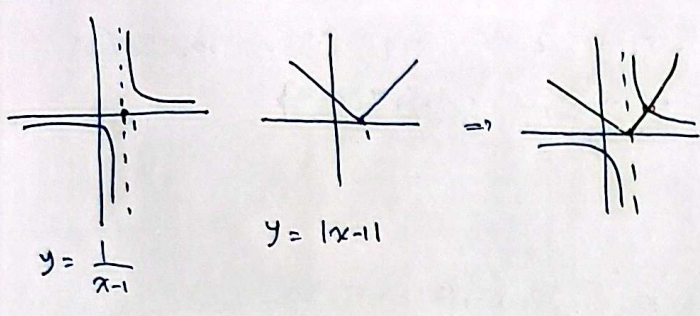


۱۸,۵

نام و نام خانوادگی پاسخنامه تشریحی تکلیف شماره کلاس



$y = \frac{1}{x-1}$ $y = |x-1|$

۱) ارس (هندسی):
در یک نقطه متقاطع هستند
و یک راس دارد.

الف) $-2 < \frac{x-1}{x} < 2 \rightarrow -2x < x-1 < 2x \rightarrow -2x < x-1 \rightarrow 1 < 3x \rightarrow x > \frac{1}{3}$

ب) $\frac{x-2}{x+1} = 1 \rightarrow x-2 = x+1 \rightarrow x = -3$

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

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

$\Rightarrow (-3, -\frac{1}{2}) \cup (-\frac{1}{2}, \frac{1}{2})$

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$x+y < -x^2 \rightarrow x^2+x+y < 0 \quad \Delta = 1-2y \Rightarrow \Delta < 0 \quad x$

$x+y > x^2 \rightarrow x^2-x-y < 0 \quad \Delta = 1-4(-y) = 4y \rightarrow \frac{1+\sqrt{4y}}{2} = 3 \quad \frac{1-\sqrt{4y}}{2} = -2$

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

$|x-a| < B \rightarrow -B < x-a < B \rightarrow -B+a < x < B+a$

$-B+a = -2 \quad 2a = 1$
 $+B+a = 2 \quad a = \frac{1}{2}$

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۴) $x = -1 \quad x = 0 \quad x = 2$

$(x=-1) \quad (x=0) \quad (x=2)$

$-2+3=1 \quad 1+2=3_{max} \quad 2-2=-1_{min}$

۴

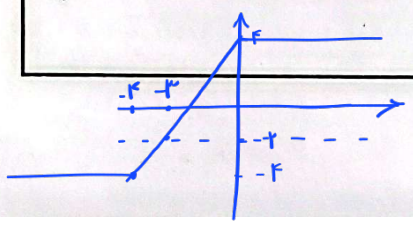
۵) $| \frac{1}{2}x + \frac{1}{2} | - 1 = | \frac{1}{2}x | - 2 \rightarrow | \frac{1}{2}x + \frac{1}{2} | - | \frac{1}{2}x | = -1$

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

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

$x = -2$

۵



$y = y' \rightarrow |x+1| - |x| = -2$

$2x = -2$

$\omega) \begin{cases} 1-x=0 & x=1 \\ x+\varepsilon=0 & x=-\varepsilon \end{cases} \quad L(1) = 1-1 - 1+\varepsilon = 0 - \varepsilon = -\varepsilon$ $L(-\varepsilon) = 1+\varepsilon - -\varepsilon+\varepsilon = \varepsilon$ $g(x) = 1-x - x+\varepsilon \rightarrow L(x) = [1-x - x+\varepsilon] \quad R_L = \{-\varepsilon, -\varepsilon, -\varepsilon, -\varepsilon, -1, 0, 1, \varepsilon, \varepsilon, \varepsilon\}$ $R_g = [-\varepsilon, \varepsilon]$ $\text{ب) } L(x) = \frac{1}{x} - [1 + \frac{1}{x}] \xrightarrow{\text{ملاحظة}} \frac{1}{x} - [\frac{1}{x}] - 1 \Rightarrow 0 \leq \frac{1}{x} - [\frac{1}{x}] < 1 \Rightarrow -1 \leq \frac{1}{x} - [\frac{1}{x}] - 1 < 0$ $x \neq 0 \quad R_L = [-1, 0)$	
$\omega) \begin{cases} -1 < x < -\frac{1}{2} & y=1 \\ -\frac{1}{2} < x < 0 & y=-1 \\ 0 < x < \frac{1}{2} & y=-x \\ \frac{1}{2} < x < 1 & y=x \end{cases}$ $\text{ب) } \begin{cases} -2 < x < 0 \\ 0 < x < 2 \end{cases} \Rightarrow x$ $x - \varepsilon(1) = x + \varepsilon$	Y
$\omega) \begin{cases} x=0 & y=1 \\ x=1, -1 & y=0 \\ x=\pm 2, -2 & y=1 \end{cases}$ $\Rightarrow \begin{cases} x=0 & y=0 \\ x=-1 & y=2 \\ x=1 & y=-2 \\ x=2 & y=0 \end{cases}$	A
$[b] = \mathbb{Q} \rightarrow 1, 2, 3, \dots \quad \text{ملاحظة} \quad [b] = \mathbb{Z} \xrightarrow{a=0, 1} b - [a] = 2, 1 \xrightarrow{a=0, 1} b = 2, 1 \quad [b] \neq \mathbb{Z}$ $[b] = 3 \xrightarrow{a=1, 2} b - [a] = 2, 1 \xrightarrow{a=1, 2} b = 1 + 2, 2 = 3, 1 \rightarrow [3, 1] = 3 \quad b = 3$ $a+b = 3, 9$	9
$1 - \sqrt{1} \approx 1 - 1, \varepsilon = -\varepsilon \rightarrow (-\varepsilon)^4 = A \rightarrow 0 < A < 1$ $(1 + \sqrt{1})^4 + A = 191 \quad (1 + \sqrt{1})^4 = 191 - A \approx 191, \dots$ $[(1 + \sqrt{1})^4] = [191, \dots] = 191$	10