

نام و نام خانوادگی ..... آیدین آقاچاق ..... پاسخنامه تشریحی تکلیف شماره ۵ ..... کلاس (فازیم پسر) A .....

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

ب)  $y = \frac{x^2}{|x|} + \frac{1}{|x|} \Rightarrow |x| + \frac{1}{|x|} \geq 2 \rightarrow [1, +\infty)$

$yx + 2y = x^2 + 2x - 2 \rightarrow x^2 + (2-y)x - (2+2y) = 0 \rightarrow \frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow \Delta \geq 0 \rightarrow \Delta = (y-2)^2 + 1 + 4y$   
 $= y^2 + 6y + 12 \rightarrow (y+3)(y+4) \geq 0 \rightarrow \frac{-}{+1} \frac{+}{-} \rightarrow R = (-\infty, -4] \cup [-3, +\infty)$

$D = x^2 - x + 1 \neq 0 \rightarrow \Delta < 0 \rightarrow D \cdot \text{این دو ریشه خطی نیستند} \quad D_f = 11$

$R = \frac{(x-\frac{1}{2})^2}{(x-\frac{1}{2})^2 + \frac{3}{4}} \rightarrow (x-\frac{1}{2})^2 = t \rightarrow \frac{t}{t+\frac{3}{4}} = y \rightarrow t = yt + \frac{3}{4}y \rightarrow t(y-1) = \frac{3}{4}y \rightarrow t = \frac{\frac{3}{4}y}{y-1}$

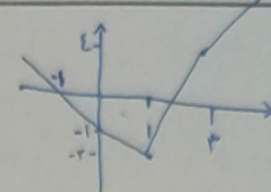
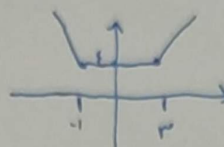
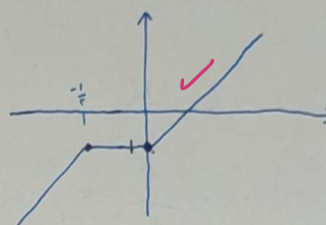
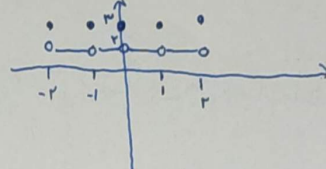
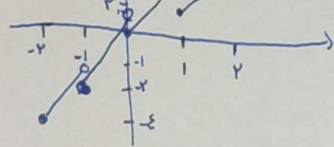
$\frac{x-\frac{1}{2}}{t} = 0 \rightarrow \frac{1}{t} \rightarrow R = [0, 1)$

الف)  $\frac{-b}{2a} = \frac{-\varepsilon}{-2} = 2 \rightarrow -(\varepsilon) + 1 - 1 = 2 \rightarrow \sqrt{(-\infty, 3]} = \begin{bmatrix} 0 \\ \sqrt{3} \end{bmatrix} \quad R_y = [0, \sqrt{3}]$  رفت! به روطه اعمال نیست!

ب)  $\frac{-b}{2a} = \frac{1}{\varepsilon} = 2 \rightarrow 1 - 14 = -1 \rightarrow R = \sqrt{[-1, +\infty)} = [-1, +\infty)$

الف)  $f(x) = x^3 - x + 1 \rightarrow R_f = \mathbb{R} \Rightarrow f: \mathbb{R} \rightarrow \mathbb{R} \rightarrow R = \mathbb{R}$

ب)  $\frac{x^{2+1}}{x} = x + \frac{1}{x} \rightarrow (-\infty, -1] \cup [1, +\infty) \rightarrow \lim_{x \rightarrow 0} \rightarrow \lim_{x \rightarrow 0} [1, +\infty) = [1, +\infty)$

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| <p>الف) <math>\frac{-x+2+2x-3}{-x-1} \quad \frac{2x-2+x-3}{2x-\omega} \quad \frac{2x-2-x+3}{x+1} \rightarrow</math></p>  <p><math>\rightarrow R = [-2, +\infty)</math></p> <p>ب) تابع گسسته <math>\rightarrow</math></p>  <p><math>\rightarrow R = [1, +\infty)</math></p>                                                                                                                       | <p>۶</p> <p>(۲)</p>  |
| <p><math>\frac{-x+2+2x+2}{x+1} \quad \frac{-x+2-2x-2}{-3x} \quad \frac{x-2-2x-2}{x-1}</math></p> <p><math>x+1 \leq 1 \quad -3x \leq 1 \quad x-1 \leq 1</math></p> <p><math>x \leq -3 \quad x \geq -\frac{1}{3} \quad x \leq 2</math></p> <p><math>\rightarrow (-\infty, -3] \cup [-\frac{1}{3}, +\infty)</math></p> <p>وقت:</p>                                                                                                                                                                                                                                     | <p>۷</p> <p>(۲)</p>  |
| <p><math>\frac{2x+2x+1-x}{x+1} \quad \frac{2x-2x-1-x}{-1} \quad \frac{2x-2x-1+x}{x-1}</math></p> <p><math>x+1 \leq 1 \quad -1 \leq 1 \quad x-1 \leq 1</math></p> <p><math>x \leq -2 \quad -1 \leq 1 \quad x \leq 2</math></p> <p><math>R = \mathbb{R}</math></p>                                                                                                                                                                                                                 | <p>۸</p> <p>(۲)</p>  |
| <p>الف) <math>[x] + [-x] + 3 \rightarrow R = \{3, 4\}</math></p> <p><math>R = \{0, -1\}</math></p>  <p>ب) <math>\rightarrow R = [-1, +\infty)</math></p>                                                                                                                                                                                                                                     | <p>۹</p> <p>(۲)</p>  |
| <p>الف) <math>\sin \rightarrow 1 \rightarrow  1-1 =1</math></p> <p><math>\frac{1}{r} \rightarrow \frac{1}{\varepsilon} - \frac{1}{\varepsilon} + \frac{\varepsilon}{r} = \frac{\varepsilon}{r} \rightarrow \left[ \frac{1}{r}, \frac{1}{\varepsilon} \right]</math></p> <p><math>-1 \rightarrow  1-1 =1</math></p> <p>ب) <math>\sin^2 \rightarrow 1 \rightarrow  1-1 =1</math></p> <p><math>\frac{1}{r} \rightarrow \frac{1}{\varepsilon} - \frac{1}{\varepsilon} + \frac{\varepsilon}{r} = \frac{\varepsilon}{r} \rightarrow [1, \frac{1}{\varepsilon}]</math></p> | <p>۱۰</p> <p>(۲)</p> |