

الف

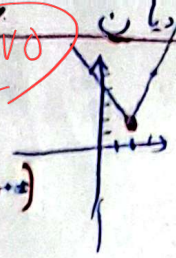
$$x \geq 1 \Rightarrow x + 1 - 1 = x \Rightarrow x \geq 1$$

$$x < 1 \Rightarrow x - 1 + 1 = x \Rightarrow x < 1$$

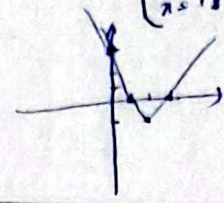
$$x \geq 1 \Rightarrow x + 1 - 1 = x \Rightarrow x \geq 1$$

$$x < 1 \Rightarrow x - 1 + 1 = x \Rightarrow x < 1$$

17/75



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دایره $[-1, +\infty)$

الف) $x \geq 1 \Rightarrow x + 1 - 1 = x \Rightarrow x \geq 1$

$x \geq 1 \Rightarrow x + 1 - 1 = x \Rightarrow x \geq 1$

$x \geq 1 \Rightarrow x + 1 - 1 = x \Rightarrow x \geq 1$

$$-x + 1 - (x + 1) = -2x$$

$$k = -2$$

$$k = -1$$

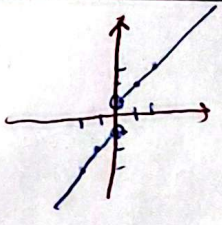
1

$x < 1$ نقطه باره آرک باجه $\rightarrow$
 $x = 1: f(1) = |0| - |1-1| = 0 - 0 = 0$
 $x = 2: f(2) = |1| - |0| = 1 - 0 = 1$
 هست درجه $x \geq 1$

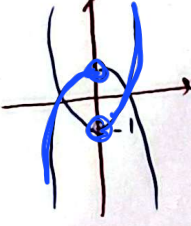
الف) $x > 0 \rightarrow x + \frac{2}{x} = x + 1$

$R_f = R - [-1, 1]$

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



1, 0



$R_f = R$

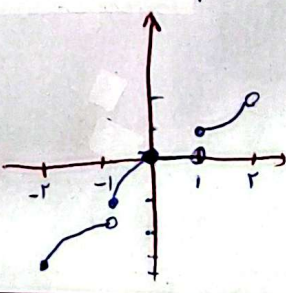
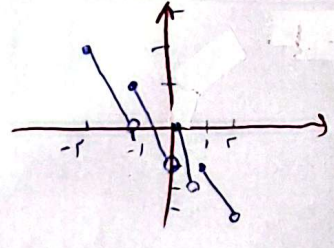
ضریب تراز باجه
 چون تغییرات
 نشانه است

$x > 0 \rightarrow x^2 - 1$

$x < 0 \rightarrow -x^2 + 1$

ب) الف

$[x]^2 x$



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ب) $[x] |x|$

الف) $x \in [n, n+1) \Rightarrow$

$R_f = [0, 1)$

ب) $f(n) - f[n] \leq$

$f(x - [x]) \in R_f \subset [0, 1)$

ج) $g \in x - \omega\left[\frac{x}{\omega}\right] \in$

$\omega x - \omega[n] = x - \omega\left[\frac{x}{\omega}\right] \in R_f \subset [0, \omega)$

د) $[x_n] x_n \in$

$\{ \} - [0] < 1 \rightarrow \{ \} - \{ \} \in R_f = (-1, 0]$

$$a) \sqrt{9+1} \leq \sqrt{9+1} \leq \sqrt{9+1} = [-\sqrt{10}, \sqrt{10}] \quad -6$$

$$b) \sqrt{17+\frac{1}{9}} \leq \sqrt{17+\frac{1}{9}} \leq \sqrt{17+\frac{1}{9}} = [-\sqrt{17\frac{1}{9}}, \sqrt{17\frac{1}{9}}] \quad 1, \sqrt{10}$$

$$c) \sqrt{17+\frac{1}{9}} \leq \sqrt{17+\frac{1}{9}} \leq \sqrt{17+\frac{1}{9}} = [-\sqrt{17\frac{1}{9}}, \sqrt{17\frac{1}{9}}]$$

$$\Rightarrow \{-6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6\}$$

$$d) \sqrt{17+\frac{1}{9}} \leq \sqrt{17+\frac{1}{9}} \leq \sqrt{17+\frac{1}{9}} = [0, \sqrt{17\frac{1}{9}}]$$

$$a) y = \sin^2 x + \mu \sin x + \nu \Rightarrow \frac{-b}{2a} = \frac{-\mu}{2} = -\frac{\mu}{2} \Rightarrow [-\frac{\mu}{2}, \frac{\mu}{2}]$$

$$\max_{x \in [0, 2\pi]} \rightarrow \mu + \nu \sqrt{5} \Rightarrow R = [1, 7]$$

$$\min_{x \in [0, 2\pi]} \rightarrow \mu - \nu \sqrt{5} \Rightarrow R = [-1, 7]$$

$$b) y = \sin^2 x + \mu \sin x + \nu \Rightarrow \frac{-b}{2a} = \frac{-\mu}{2} = -\frac{\mu}{2} \Rightarrow [-\frac{\mu}{2}, \frac{\mu}{2}]$$

$$\max_{x \in [0, 2\pi]} \rightarrow \mu + \nu \sqrt{5} \Rightarrow R = [1, 7]$$

$$\min_{x \in [0, 2\pi]} \rightarrow \mu - \nu \sqrt{5} \Rightarrow R = [-1, 7]$$

$$a) \sin^2 x + \cos^2 x = 1 + \mu \cos^2 x \Rightarrow R_F = [1, 2]$$

$$b) \frac{\cos^2 x}{1 + \cos^2 x} = \frac{\frac{1 + \cos 2x}{2}}{\frac{1 + \cos 2x}{2} + 1} = \frac{1 + \cos 2x}{3 + \cos 2x} = \sin^2 x \Rightarrow R_F = [-1, 1]$$

$$a) y = \sin^2 x + \cos^2 x \Rightarrow \frac{1}{\sqrt{2}} \leq \sin^2 x + \cos^2 x \leq 1 \Rightarrow R_F = [\frac{1}{\sqrt{2}}, 1]$$

$$b) y = [\sin^2 x + \cos^2 x] \Rightarrow \frac{1}{\sqrt{2}} \leq \sin^2 x + \cos^2 x \leq 1 \Rightarrow \frac{1}{\sqrt{2}} \leq \sin^2 x + \cos^2 x \leq 1$$

$$R_F = [\frac{1}{\sqrt{2}}, 1]$$

$$a) y = \frac{x^2 + \nu x - t}{x+1} = y_{n+1} = \frac{x^2 + \nu x - t}{x+1} \Rightarrow y_{n+1} = \frac{x^2 + \nu x - t}{x+1} \Rightarrow y_{n+1} = \frac{x^2 + \nu x - t}{x+1}$$

$$\Delta = (\nu - t)^2 - 4(-t) = (\nu - t)^2 + 4t \geq 0$$

$$R_F = [R_1, R_2]$$

$$b) y = \frac{x^2 - 1}{x - 1} = \frac{(x-1)(x+1)}{x-1} \Rightarrow y = x+1 \Rightarrow \frac{-b}{2a} = -\frac{1}{2}$$

$$\min \Rightarrow \frac{1}{2} - \frac{1}{2} + 1 = \frac{1}{2}$$

$$R_F = [\frac{1}{2}, \infty)$$