

نام: رینا احمدی تسلیم: دوازدهم (مهر) شماره شالیه: ۶

الف) $D = [-\frac{2}{3}, \frac{4}{3}]$ $-\frac{2}{3} \leq x \leq \frac{4}{3} \rightarrow -\frac{2}{3} \leq x-2 \leq \frac{4}{3}-2 \rightarrow -\frac{2}{3} \leq x-2 \leq -\frac{2}{3} \rightarrow x-2 = -\frac{2}{3} \rightarrow x = -\frac{2}{3} + 2 = \frac{4}{3}$

ب) $D_{f(x-2)} = [-4, -2] \rightarrow D_{f(x)} = [3(-4)-2, 3(-2)-2] \rightarrow D_{f(x)} = [-14, -8]$

پ) $f(x) = x + \sqrt{x-2} \rightarrow g(x) = (x-2) + \sqrt{(x-2)-2} = x-2 + \sqrt{x-4}$ $y = x-2 + \sqrt{x-4} \rightarrow y = x-2 \rightarrow x = y+2$ $y = y+2 + \sqrt{y+2-4} \rightarrow y = y+2 + \sqrt{y-2} \rightarrow 0 = 2 + \sqrt{y-2} \rightarrow \sqrt{y-2} = -2 \rightarrow y-2 = 4 \rightarrow y = 6$

ت) $f(x) = \frac{1}{2}x(10-x)$ $f(2) = \frac{1}{2} \cdot 2 \cdot (10-2) = 8$ $f(4) = \frac{1}{2} \cdot 4 \cdot (10-4) = 12$ $f(6) = \frac{1}{2} \cdot 6 \cdot (10-6) = 12$ $f(8) = \frac{1}{2} \cdot 8 \cdot (10-8) = 8$ $f(10) = \frac{1}{2} \cdot 10 \cdot (10-10) = 0$

ث) $A(2, -2) \rightarrow f(2) = -2$ $A'(x) = \frac{1}{x} \rightarrow A'(2) = \frac{1}{2}$ $\frac{y-a}{x-a} = \frac{1}{2} \rightarrow y-a = \frac{1}{2}(x-a) \rightarrow y = \frac{1}{2}x - \frac{1}{2}a + a = \frac{1}{2}x + \frac{1}{2}a$ $y = \frac{1}{2}x + \frac{1}{2}a \rightarrow y = \frac{1}{2}x + \frac{1}{2}(-4) = \frac{1}{2}x - 2$ $y = \frac{1}{2}x - 2 \rightarrow x = 2y + 4$ $x = 2(-2) + 4 = 0$ $x = 0$

ج) $y = -f(x-2) \rightarrow y = -f(x)$ $y = f(x) \rightarrow y = f(x+2)$ $y = f(x+2) \rightarrow y = f(x)$ $y = f(x) \rightarrow y = f(x)$

ح) $f(x) = \frac{1}{x} \rightarrow f(x-1) = \frac{1}{x-1}$ $f(x) = \frac{1}{x} \rightarrow f(x-1) = \frac{1}{x-1}$

ط) $y = \sqrt{-(x+2)f(x-1)}$ $y = \sqrt{-(x+2)f(x-1)}$ $D_f = [-2, 0] \cup [1, 2]$

ظ) $g(x) = |2x-3+k| + 1 - 3$ $g(x) = |2x-3+k| - 2$ $g(0) = f(0)$ $g(0) = |2(0)-3+k| - 2 = f(0) = |2(0)-3| - 2 = 1 - 2 = -1$ $|2(0)-3+k| - 2 = -1 \rightarrow |2(0)-3+k| = 1 \rightarrow |-3+k| = 1 \rightarrow k-3 = 1 \rightarrow k = 4$

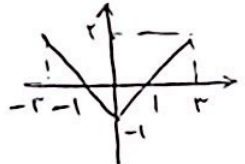
$$g(x) = -\frac{r(\frac{x}{r}) - 1}{(\frac{x}{r}) + 1} + k = -\frac{rx - r}{x + r} + k \xrightarrow{x \neq -r} g(x) = f(x) \rightarrow \frac{rx - 1}{x + 1} = -\frac{rx - r}{x + r} + k \quad (\Delta)$$

$$k = \frac{rx - 1}{x + 1} + \frac{rx - r}{x + r} \rightarrow k = \frac{\xi x^2 + rx - 4}{x^2 + \xi x + r} \rightarrow (\xi - k)x^2 + (r - \xi k)x + (-4 - rk) = 0$$

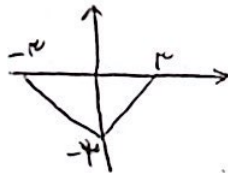
$$\rightarrow \Delta = b^2 - 4ac = \xi^2 k^2 - 4k + 11r = \xi((k-1)^2 + 2r) \rightarrow \Delta \text{ صفره جداره نسبت دره}$$

درین صند نمیشود یعنی ریشه حقیقی در معادله وجود دارد پس باید ضمیمه ξ را صفر بنذاریم تا باقی بماند
 $\xi - k = 0 \rightarrow k = \xi \rightarrow$ که واحد بار به r باقی میماند

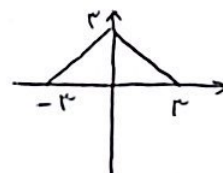
$$y_1 = -f(\frac{x}{r}) + r \xrightarrow{\text{در واحد بهینه}} y = -f(\frac{x}{r}) \xrightarrow{\text{نسبت به محور } x \text{ ها}} y = f(\frac{x}{r}) \xrightarrow{\text{تقسیم بر } r} y = f(u) \quad (9)$$



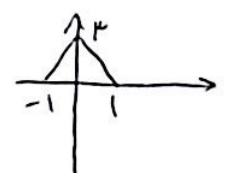
$$y_1 = |x| - 1$$



$$y = |x| - r$$

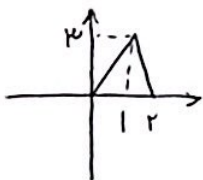


$$y_2 = -|x| + r$$

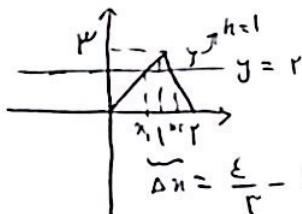


$$y = -|rx| + r$$

$$\xrightarrow{\text{باید واحد بهینه}} y = f(x-1)$$



$$y_2 = -|rx - r| + r$$



$$\Delta x = \frac{r}{r} - \frac{r}{r} = 1 \rightarrow S_2 = \frac{h \cdot \Delta x}{r} = \frac{1 \cdot 1}{r} = \frac{1}{r}$$

$$-|rx - r| + r = 1 - x = \frac{x}{r} \rightarrow -rx + r + 1 - x = \frac{x}{r}$$

$$\xrightarrow{\min} f(a) = |a - a| - r = -r \rightarrow h_r = r \rightarrow S_r = \frac{(a+r - (a-r)) \times r}{r} = \epsilon \quad (10)$$

$$S_1 + S_r = \frac{q}{r} \xrightarrow{S_r = \epsilon} S_1 = \frac{1}{r} = \frac{(a-r)(a-r)}{r} \rightarrow a^2 - \epsilon a + \epsilon = 1 \rightarrow a^2 - \epsilon a + r_2$$

$$\begin{aligned} \nearrow a=1 & \text{ جواب شش} \\ \searrow a=r & \text{ جواب شش} \end{aligned} \quad \begin{aligned} a=1 & \text{ جواب شش} \\ a=r & \text{ جواب شش} \end{aligned} \rightarrow f(\frac{1}{a}) = f(\frac{1}{r}) = |\frac{1}{r} - r| - r = \frac{r}{r}$$