

14, 15

حل المسألة

$$-r \leq \frac{rx+r}{\omega} \leq r \quad \xrightarrow{\times \omega} \quad -r\omega \leq rx+r \leq r\omega \quad \xrightarrow{-r} \quad -r\omega - r \leq rx \leq r\omega - r \quad \xrightarrow{\div r} \quad \frac{-r\omega - r}{r} \leq x \leq \frac{r\omega - r}{r}$$

$$\frac{-r\omega - r}{r} \leq x \leq \frac{r\omega - r}{r} \quad \rightarrow Df\left(\frac{rx+r}{\omega}\right) \rightarrow [-r\omega, r\omega] \quad (r)$$

$$x = -r \rightarrow f(rx-r) = r(-r) - r = -r\omega - r \quad (r)$$

$$x = r \rightarrow f(rx-r) = r(r) - r = r\omega - r \quad (r)$$

$$Df(x) = [-r\omega, r\omega]$$

$$f\left(\frac{rx+r}{r}\right) \rightarrow x=1 \rightarrow \frac{r+1}{r} = -1 \quad Df(x) = [-r\omega, r\omega] \quad (r)$$

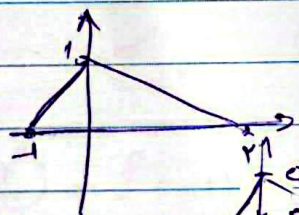
$$\rightarrow x=r \rightarrow \frac{r+1}{r} = \omega$$

$$-f(r-\omega x) \rightarrow -1 \leq r-\omega x \leq \omega \rightarrow -r \leq -\omega x \leq r \quad \xrightarrow{\div -\omega} \quad \frac{-r}{-\omega} \leq x \leq \frac{r}{-\omega}$$

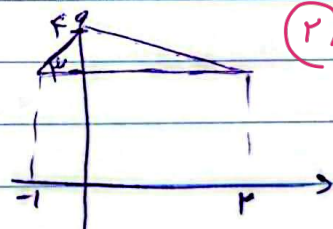
$$Df(r-\omega x) \Rightarrow \left(-\frac{r}{\omega}, \frac{r}{\omega}\right) \quad (r)$$

$$y = r f(rx+1) + r$$

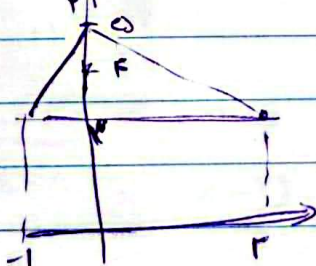
$f(x)$



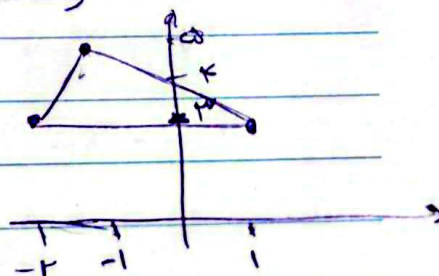
$$y = f(x) + r$$



$$y = r f(x) + r$$

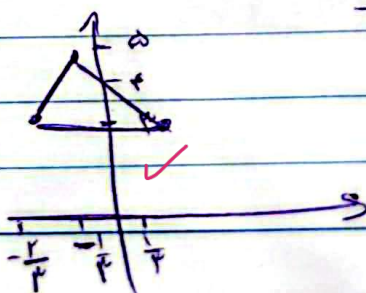


$$r f(x+1) + r$$



$$y = r f(rx+1) + r$$

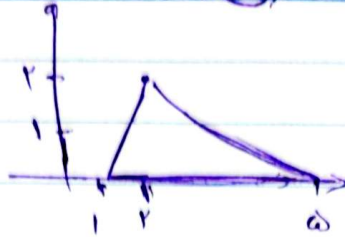
هذا هو الجواب



REEF GROUP

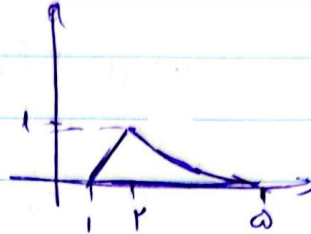
جواب

$f(x) \rightarrow$

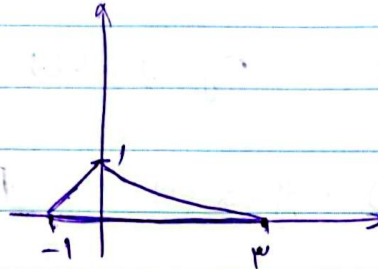


(2)

$y = \frac{1}{r} f(x)$ $\rightarrow$ $\div r$ $\rightarrow$ $\frac{1}{r}$ $\rightarrow$ $\frac{1}{r}$

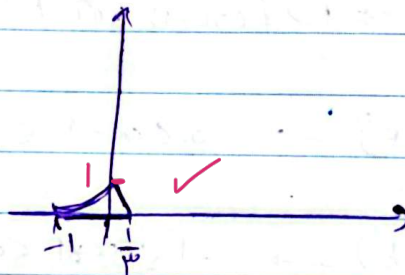


$y = \frac{1}{r} f(x+r)$



$y = \frac{1}{r} f(-r \leq x \leq r)$

ملاحظه: $\frac{1}{r}$ $\rightarrow$ $\frac{1}{r}$ $\rightarrow$ $\frac{1}{r}$



$\frac{1}{r} \rightarrow \frac{1}{r} = \frac{1}{r} = \frac{1}{r} \rightarrow \frac{1}{r} \rightarrow \frac{1}{r}$

(4)

$x = \frac{r}{\omega} \rightarrow y = \frac{1}{r} \left(\frac{1}{r\omega} \right) + \frac{r}{\omega} \frac{r}{\omega} + 1 = \frac{r}{r\omega} + 1 = \frac{r}{r\omega}$

مثال: $\frac{r}{\omega} \rightarrow r \rightarrow x - \frac{r}{\omega} \rightarrow y = -\frac{1}{r} \left(x - \frac{r}{\omega} \right)^r + \frac{r}{\omega} \left(x - \frac{r}{\omega} \right) + 1$

صفحه آخر

حل المسألة

$$x \in \mathbb{R} \mid f(x) = 1 \rightarrow f(x+1) \rightarrow x+1 = 1 \rightarrow x = 0 \quad (1) \quad (2)$$

$$x \in \mathbb{R} \mid f(x) = -1 \rightarrow y = +1 - f(x) \rightarrow x-1 = -1 \rightarrow x = 0 \rightarrow -1+1 = -1$$

$$\left| \frac{x'}{y'} \right| = \frac{-1}{-1} = 1 \rightarrow \alpha + \beta = \frac{1}{x} (x-1) = \frac{1}{x}$$

$$D_f = [a, k] \quad D_g = [-1, b]$$

(1) (A)

$$y = f(x-1) + g(x+1) \quad D = (-1, a) \quad a-b = ?$$

$$D = (-1, a) \Rightarrow D_f(x-1) \cap D_g(x+1) = (-1, a)$$

$$a+1 = -1 \rightarrow a = -2$$

$$D_f = [a, k] \rightarrow a \leq x-1 \leq k \rightarrow a+1 \leq x \leq k+1 \rightarrow [a+1, k+1]$$

$$D_g = [-1, b] \rightarrow -1 \leq x+1 \leq b \rightarrow -2 \leq x \leq b-1 \rightarrow [-2, b-1]$$

$$a-b = a \rightarrow -2-4 = -6 \quad b=4 \leftarrow b-1=a$$

$$D_f \rightarrow \frac{-1}{x} \leq \frac{x}{x} \leq a \rightarrow -1 \leq \frac{x}{x} \leq k$$

(1) (A)

$$-1 \leq x \leq 1 \rightarrow D_{f(x)} = [-1, 1]$$

$$y_r = \sqrt{|2f(x) - 3|} \rightarrow D_{y_r} = [-1, 1]$$

منه آخر

$$R_{y_r} =$$

$$R_{f(x+1)} = [-1, 2] \rightarrow R_{f(x)} = [-1, 1]$$

$$y_r = \sqrt{|r f(n) - 1|}$$

$$R|t| = [\sigma, \omega] \rightarrow R|\sqrt{t}| = [\sigma, \sqrt{\omega}]$$

$$f(x) = \left| \frac{x+1}{2x+1} \right| \xrightarrow{\text{subst. } x=p} f(p) = \left| \frac{(p-1)+1}{p(p-1)+1} \right| \xrightarrow{+1} \text{ (1, V)} \quad (10)$$

$$a + f(n) \rightarrow a + \left| \frac{x-1}{x-1} \right| + 1 < 0 \rightarrow x+1 < -\left| \frac{x-1}{x-1} \right|$$

$$\downarrow$$

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

$$(-\infty, -\sqrt{2}) \cup (-\infty, 1)$$

صفی آخر

$$\alpha + 1 + \frac{\alpha - 1}{p - \alpha} = \frac{p\alpha + p\alpha + p - p\alpha + \alpha - 1}{p - \alpha} \rightarrow \frac{p\alpha + p + \alpha - 1}{p - \alpha}$$

$$\hookrightarrow \alpha = \frac{\pi}{2}$$

$$\frac{r \pm \sqrt{r^2 - 4k}}{-r}$$

$$\frac{r \pm \sqrt{r^2 - 4k}}{-r}$$

$n < -1$

Intervallos

$$\emptyset \cup \left[\cancel{1, \frac{1}{n}} \right) \cup \left[-\infty, -\sqrt{2} \right) \rightsquigarrow \left[-\infty, -\sqrt{2} \right) \cup \left[\cancel{1, \frac{1}{n}} \right)$$

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$$\text{رأس: } (h, K) \xrightarrow{\text{معادله خط}} y = a(n-h)^2 + K = -\frac{1}{4}n^2 + \frac{1}{2}n + 1 \rightarrow a = -\frac{1}{4}$$

$$\text{رأس: } (4, 3) \rightarrow y = -\frac{1}{4}(n-4)^2 + 3 \xrightarrow{y=0} -\frac{1}{4}(n-4)^2 = -3 \rightarrow \begin{cases} n=7 \\ n=1 \end{cases}$$

-9

$$D_{y_1} = [-3, 5] \rightarrow -3 \leq n \leq 5 \rightarrow -\frac{1}{4} \leq \frac{n}{4} + 1 \leq \frac{5}{4} \Rightarrow D_f = \left[-\frac{1}{4}, \frac{5}{4}\right]$$

$$R_{y_1} = [-1, 2] \rightarrow -1 \leq f \leq 2 \rightarrow -5 \leq 2f - 3 \leq 1 \rightarrow 0 \leq |2f - 3| \leq 5$$

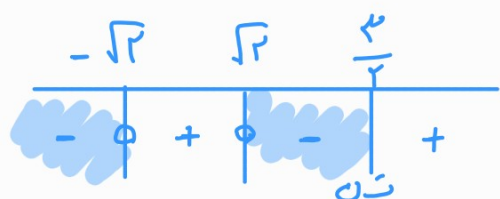
$$0 \leq \sqrt{|2f - 3|} \leq \sqrt{5} \Rightarrow R_f = [0, \sqrt{5}]$$

-10

$$g(n) = \left| \frac{(n-2)+1}{2(n-2)+1} \right| + 1 = \left| \frac{n-1}{2n-3} \right| + 1$$

$$n + g(n) < 0 \rightarrow \left| \frac{n-1}{2n-3} \right| < -1-n \rightarrow \text{از به قدر مطلق بزرگتر شده پس باید مثبت باشد: } -1-n > 0 \rightarrow n < -1$$

$$\xrightarrow[n < -1]{\text{قدر مطلق مثبت}} \frac{n-1}{2n-3} < -1-n \rightarrow \frac{2n^2-4}{2n-3} < 0 \rightarrow \frac{2(n-\sqrt{2})(n+\sqrt{2})}{2n-3} < 0$$



$$\xrightarrow{n < -1} n < -\sqrt{2} \rightarrow (-\infty, -\sqrt{2})$$