

حل المسألة

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

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

(2)

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

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

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

(3)

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

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

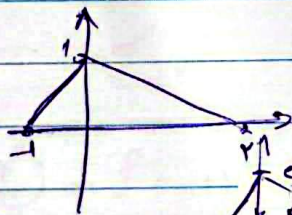
$$-f(r - \omega x) \rightarrow -1 \leq r - \omega x \leq \omega \rightarrow -r \leq -\omega x \leq r \quad \xrightarrow{\frac{\omega}{-1}} \quad \frac{r}{\omega} \leq x \leq \frac{-r}{\omega}$$

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

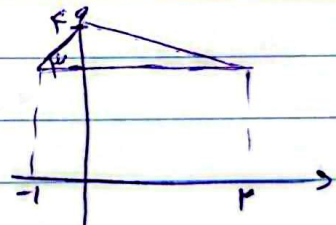
(4)

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

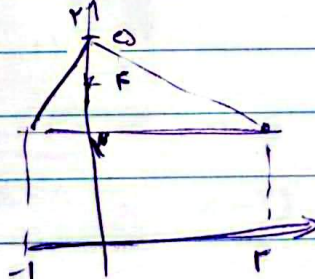
$f(x)$



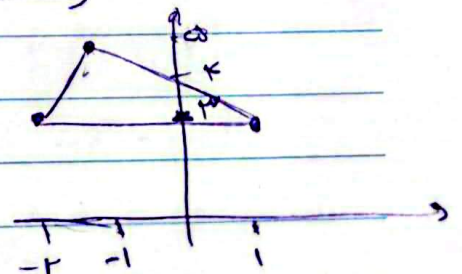
$$y = f(x) + r$$



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

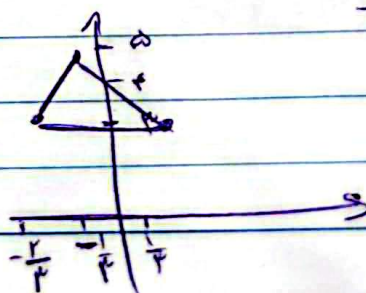


$$r f(x+1) + r$$



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

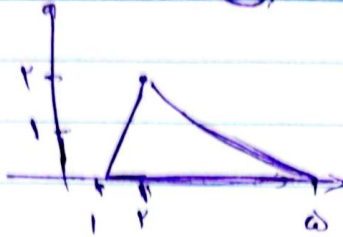
نفس الشيء



REEF GROUP

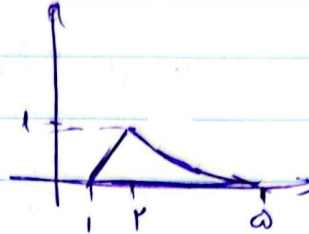
Linear Wsk

$f(x) \rightarrow$

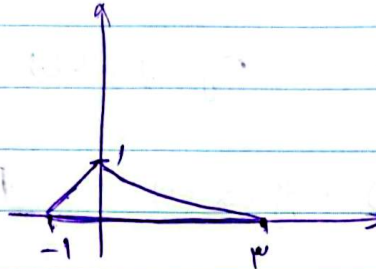


(3)

$y = \frac{1}{r} f(x) \xrightarrow{\div r \text{ Breite}}$

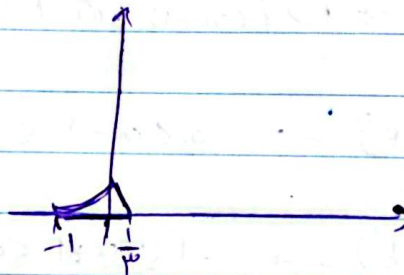


$y = \frac{1}{r} f(x+r)$



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

mit $-\frac{r}{\omega}$ Breite x



$\frac{b}{r\omega} = \frac{1}{r\omega} = \frac{-\frac{r}{\omega}}{-\frac{r}{\omega}} = \frac{r}{\omega} \rightarrow x$

(4)

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

ext $\left| \begin{array}{l} \frac{r}{\omega} \rightarrow r \rightarrow x - \frac{r}{\omega} \\ \frac{r\omega}{r\omega} \rightarrow r \rightarrow y + \frac{r\omega}{r\omega} \end{array} \right. \quad \sim \frac{1}{r} = -\frac{1}{r} \left(x - \frac{r}{\omega} \right)^r + \frac{r}{\omega} \left(x - \frac{r}{\omega} \right) + 1 + \frac{r\omega}{r\omega}$

جواب

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

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

$$\left| \begin{array}{l} x \\ y \end{array} \right| \begin{array}{l} -\frac{1}{r} = \alpha \\ -1 = \beta \end{array} \rightarrow \alpha + \beta = -\frac{1}{r}(1-1) = \frac{1}{r}$$

$$D_f = [a, r] \quad D_g = [-1, b] \quad (2)$$

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

$$D = (-r, a) \Rightarrow D f(x-1) \cap D g(x+1) = (-r, a)$$

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

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

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

$$D_f \rightarrow \frac{-r}{r} \leq x+1 \leq a \rightarrow -r \leq x \leq r \quad (3)$$

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

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

$$R_{y_r} =$$

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

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

$$R|_T = \{0, \omega\} \rightarrow R|_{T^*} = \{0, \sqrt{\omega}\}$$

$$f(x) = \left| \frac{x+1}{x+1} \right| \xrightarrow{\text{cancel out } x} f(x) = \left| \frac{(x-1)+1}{x(x-1)+1} \right| \xrightarrow{+1} \quad (19)$$

$$f(m) = \left| \frac{\alpha - 1}{\mu_{2x} - \mu} \right| + 1 = g(m)$$

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

$$\downarrow$$

$$x+1 < 0 \rightarrow \underline{x < -1}$$

$$\frac{x+1 + \frac{(x-1)}{x-1}}{x-1} = \frac{x+1 + \frac{x-1}{x-1}}{x-1}$$

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

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

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

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

$$(-\infty, -r)$$

$$\begin{aligned} & \frac{\mu_n - \mu_p}{\mu_n - \mu_p} \leq 0 \\ & \left\{ \begin{array}{l} \mu_n \leq \mu_p \\ \mu_n \leq \mu_p \end{array} \right\} \\ & \mu_n \leq \mu_p \quad \cap \quad [\sqrt{F_2} \mu_p] = \emptyset \end{aligned}$$

[illegible]

جواب

$$\emptyset \cup \left[1, \frac{p}{r}\right) \cup \left[-\infty, -\sqrt{r}\right) \rightarrow \left[-\infty, -\sqrt{r}\right) \cup \left[1, \frac{p}{r}\right)$$