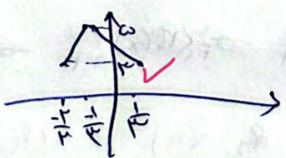
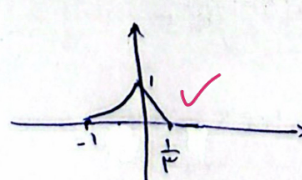


$-1 < \frac{x+2}{\omega} < 4 \rightarrow -1(x+2) < 4\omega \rightarrow -x-2 < 4\omega \rightarrow -x < 4\omega+2 \rightarrow x > -4\omega-2$ $D_f = [-4\omega-2, \omega]$	۱
$P(x, y) \rightarrow D_{f(x, y)}[-1, 3] \xrightarrow{y=2} D_{f(x)} = [-1, 7]$	۲
$-1 < x < 3 \rightarrow -3 < x+1 < 4 \rightarrow -2 < x+1 < 1 \rightarrow -1 < \frac{x+1}{\omega} < \omega$ $D_{f(x, \omega)} = \left[\frac{-1}{\omega}, \frac{1}{\omega} \right]$ جواب برعکس است	۳
$(-1, 0) \rightarrow \left(\frac{1}{\omega}, 3 \right)$ $(0, 1) \rightarrow \left(\frac{1}{\omega}, \omega \right)$ $(1, 0) \rightarrow \left(\frac{1}{\omega}, 3 \right)$ 	۴
$(1, 0) \rightarrow \left(\frac{1}{\omega}, 0 \right)$ $(0, 1) \rightarrow (0, 1)$ $(\omega, 0) \rightarrow (-1, 0)$ 	۵

$$a) \left(\frac{x}{w}, \frac{y}{r_a} \right)$$

$$y = \frac{1}{x^2} \left(x^2 - \frac{4}{x} \right) + 1 \rightarrow y = \frac{1}{x^2} \left(x^2 - \frac{4}{x} + \frac{4}{x} \right) \quad (6, 3) \quad y = \frac{1}{x^2} (x^2 - \frac{4}{x}) + 1 = \left[\frac{x^2 - 4}{x^2} + 1 \right]_{x=1}$$

$$x=1 \Rightarrow x_2=2 \rightarrow x=1 \rightarrow x=\frac{1}{x}$$

$$\frac{1}{x}$$

$$B = 1.5 \times (x_2 - y) = 4 \rightarrow B = -4$$

$$aB = \frac{1}{x} \times -4 = -\frac{4}{x}$$

$$f(x+1) \rightarrow a \leq x+1 < a+1, x < a$$

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

$$g(x+1) \rightarrow -1 \leq x+1 \leq b \rightarrow -2 \leq x \leq b-1$$

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

$$a-b=-1$$

$$f(x) \rightarrow y_1 = f\left(\frac{x}{2}+1\right) \rightarrow D_{y_1} = [2, 4] \quad x(x) \leq \omega \rightarrow \frac{x}{2} \leq \frac{\omega}{2} \rightarrow \frac{x}{2} \leq \frac{\omega}{2} + 1$$

$$D_f = \left[\frac{\omega}{2}, \frac{\omega}{2} + 1 \right]$$

$$D_f = D_{y_1}$$

$$f(x) \rightarrow y_1 = f\left(\frac{x}{2}+1\right), R_{y_1} = [-1, 2] \quad R_{y_1} = R(x) \quad -1 \leq f(x) \leq 2 \rightarrow -2 \leq f(x) \leq 4$$

$$-2 \leq f(x) \leq 4 \rightarrow R_{y_1} = [-2, 4] \quad -\infty \leq f(x) \leq \infty$$

$$f(x) = \frac{(x-1)+1}{x(x-1)+1} = \frac{x}{x^2-x+1}, g(x) = \frac{x-1}{x^2-x+1} = \frac{x-1}{x^2-x+1}$$

$$1 + g(x) = \frac{x}{x^2-x+1} \rightarrow x + \frac{x-1}{x^2-x+1} = \frac{x(x^2-x+1) + x-1}{x^2-x+1} = \frac{x^3-x^2+x^2-x+1+x-1}{x^2-x+1} = \frac{x^3}{x^2-x+1}$$

در نهایت این سه چون از قدر مطلق مثبت زیاد
بیرون

اینجا به اشتباه

داری بخاطر قدر مطلق!

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$$D_g = [-1, 2) \rightarrow -1 \leq n < 2 \rightarrow -1 \leq \frac{r_{n+1}}{r} < 2 \Rightarrow D_f = [-1, 2) \quad -3$$

$$-1 \leq 2 - \infty n < 2 \rightarrow -\frac{r}{\infty} \leq n \leq \frac{r}{\infty} \Rightarrow D_{f(2-\infty n)} = \left(-\frac{r}{\infty}, \frac{r}{\infty}\right]$$

$$D_{y_1} = [-r, \infty] \rightarrow -r \leq n \leq \infty \rightarrow -\frac{1}{r} \leq \frac{n}{r} + 1 \leq \frac{\infty}{r} \Rightarrow D_f = \left[-\frac{1}{r}, \frac{\infty}{r}\right] \quad -9$$

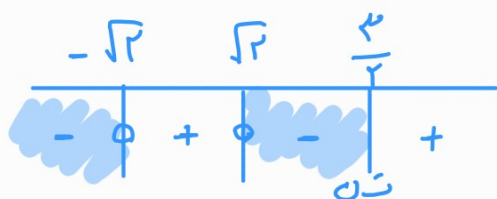
$$R_{y_1} = [-1, 2] \rightarrow -1 \leq f \leq 2 \rightarrow -\infty \leq r f - r \leq 1 \rightarrow 0 \leq |r f - r| \leq \infty$$

$$0 \leq \sqrt{|r f - r|} \leq \sqrt{\infty} \Rightarrow R_f = [0, \sqrt{\infty}]$$

$$g(n) = \left| \frac{(n-2)+1}{2(n-2)+1} \right| + 1 = \left| \frac{n-1}{2n-3} \right| + 1 \quad -10$$

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

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



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