

19, 25

کلاس: حواز (هم)

کلیف شماره: 4

نام و نام خانوادگی: فرزاد

①

$$f(m) - af(m) = r|m| + 1 \rightarrow f(-(-m)) - (-a)f(-m), r|-m| + 1 \quad (2)$$

$$f(m) + af(-m) = r|m| + 1$$

$$f(-a) - af(m) = r|m| + 1 \xrightarrow{a} af(-a) - arf(m) = r|m| + 1$$

$$arf(-a) + f(m) = r|m| + 1 \rightarrow arf(-a) + f(m) = r|m| + 1$$

$$(ar+1)f(m) = r|m| + 1 - rar|m| - m \xrightarrow{a>} r_{m+1} - r_{m^2} - m = -r_{m^2} + m + 1$$

$$\rightarrow f(m) = \begin{cases} \frac{-r_{m^2} + m + 1}{ar+1} & a > \\ \frac{r_{m^2} - r_{m+1}}{ar+1} & a < \end{cases}$$

$$\xrightarrow{a<} -r_{m+1} + r_{m^2} - m, r_{m^2} - r_{m+1}$$

$$f(m) + f(0) = ar - r_m + 4 \rightarrow rf(0), 4 \rightarrow f(0), r \rightarrow f(m), ar - r_m + r$$

$$\rightarrow f(m^2), (m^2)^r - r(ar) + r \rightarrow f(m^2), ar^2 - r_{m^2} + r$$

$$y = \frac{ar^2 + m + r}{a-1} \Rightarrow yx - y = ar^2 + m + r \rightarrow ar^2(1-y)x + r + y = 0 \quad (2) \quad (3)$$

$$\Delta > 0 \rightarrow (1-y)^2 - r(y+r) = ar^2 - ry + 1 - ry - r \rightarrow ar^2 - 4y - r$$

$$-(y-r)/(y+1) \geq 0 \rightarrow \frac{-1}{+1} - \frac{r}{+1} \rightarrow R = (-\infty - 1] \cup [r, \infty)$$

$$1) y = r_{m^2} - am + 1 \rightarrow -\frac{b}{ra} = \frac{\Delta}{K} \rightarrow r \times \frac{r\delta}{1q} - \frac{r\delta}{K} + 1 = -\frac{r\delta}{K} - \frac{r\delta}{\varepsilon} + 1 = -\frac{rV}{K}$$

$$R = [-\frac{rV}{K} + \infty)$$

$$\rightarrow y = \sqrt{-ar^2 + 4a - \omega} \rightarrow \frac{-4}{-r}, r \rightarrow -4 + 1a - 0 = r - R, (-\infty \in)$$

$$\rightarrow \sqrt{R} \rightarrow [0, r] \rightarrow y \in [0, r]$$

$$2) y = \sqrt{ar^2 - r_{m^2} + r_{m+1}} \rightarrow r_1 > r_2 < 1R \rightarrow y = [0, +\infty)$$

$$3) y = \log \frac{ar^2 - 4m^2 + Vm + \varepsilon}{r} \rightarrow \frac{1R}{r} \rightarrow R = (-\infty, +\infty) = \mathbb{R}$$

الف) $y = \frac{x^2+1}{x^2-4} \rightarrow R = \mathbb{R} - \{\frac{2}{3}\}$ (2) (5)

ب) $y = \sqrt{\frac{x^2+1}{x-2}} \rightarrow R = \mathbb{R} - \{2\} \rightarrow R_{\text{مطلوب}} = [0, +\infty) - \{2\}$

2) $y = \frac{x^2+2}{\sqrt{x^2+2}} = \sqrt{x^2+2} + \frac{1}{\sqrt{x^2+2}} \rightarrow R = [\sqrt{2} + \frac{\sqrt{2}}{2} + \infty)$

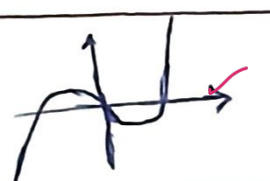
3) $x^2 + \frac{1}{x^2+2} \rightarrow x^2 + 2 + \frac{1}{x^2+2} - 2 \rightarrow R = [\frac{1}{2} + 2 + \infty) - 2 = [\frac{5}{2} + \infty)$

4) $y = \frac{x^2+2}{x^2-1} \rightarrow$ روش اول: $y(x^2-1) = x^2+2 \rightarrow (y-1)x^2 + (1+y) = 0$
 برای استفاده از روش دلتا ضریب x^2 نباید صفر شود
 $\Delta \geq 0 \rightarrow -4(y-1)(1+y) \geq 0 \rightarrow \frac{-4}{y-1} + \frac{4}{y+1} \geq 0 \rightarrow (-\infty, -1] \cup [\frac{1}{3}, +\infty)$
 روش 2: $\rightarrow$ بیشترین = $+\infty \rightarrow \frac{+\infty+2}{+\infty-1} = 1$
 $\rightarrow$ کمترین = $0 \rightarrow \frac{0+2}{0-1} = -2$
 مقدارهای بین -2 و 1 دیده نمی شود!
 می تواند منفرجه
 صفحه بعدی بین $(-\infty, -1] \cup [\frac{1}{3}, +\infty)$

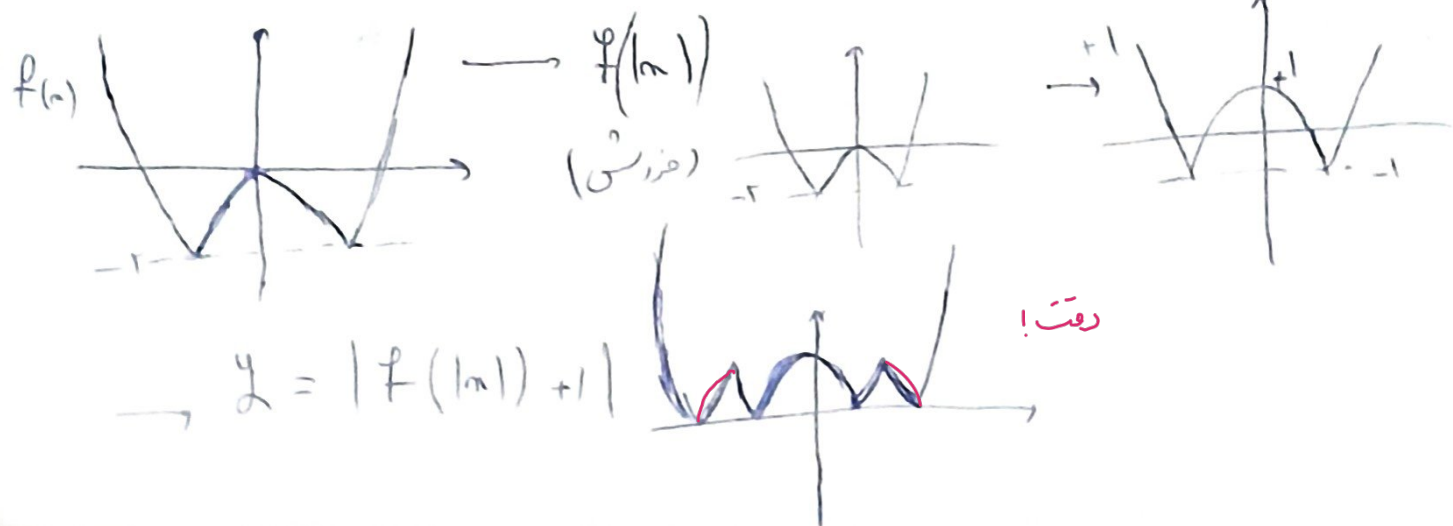
5) $f(m) = \frac{2 \sin m + 2}{\sin m - 2}$
 1) $\frac{4}{-2} = -2$
 2) $\frac{2}{-4} = -\frac{1}{2}$
 مخرج منفرجه شود $R = [-2, -\frac{1}{2})$ (2) (N)

الف) $y = \left| \frac{x^2-1}{x^2} \right| \rightarrow R = \mathbb{R} - \{\frac{1}{2}\} \rightarrow R = [0, +\infty) \checkmark$ (2) (1)

ب) $y = \sqrt{\frac{9m-18}{x^2m-18}} = \sqrt{\frac{9(m-2)}{x^2(m-2)}} = \sqrt{\frac{9}{x^2}} = \frac{3}{x} \checkmark$

$y = m|m| - 2m \xrightarrow{m>0} m^2 - 2m$
 $\xrightarrow{m<0} -m^2 - 2m$

 $\rightarrow R = \mathbb{R} \checkmark$ (2) (9)

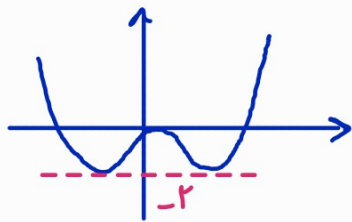
$y = |f(|m|) + 1|$ (1) (1.75)



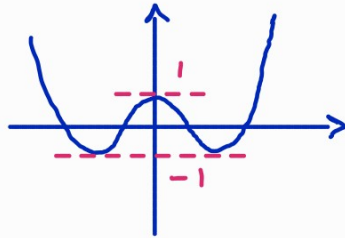
روش اول: $y n^r - y = 3n^r + 4 \rightarrow (y-3)n^r = y+4$ -9

$$n^r = \frac{y+4}{y-3} \geq 0 \rightarrow \frac{-4}{+} \frac{3}{-} \Rightarrow R_y = (-\infty, -4] \cup (3, +\infty)$$

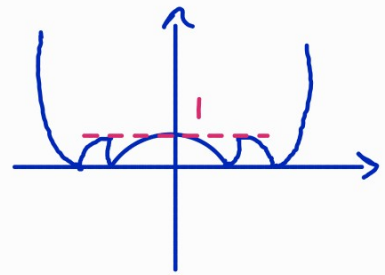
روش دوم: $\square = n^r \rightarrow \begin{cases} n^r = 0 \rightarrow y = -4 \\ n^r \sim \infty \rightarrow y = 3 \end{cases} \xrightarrow[\text{صفه نشه}]{\text{مخرج مینونه}} R_y = (-\infty, -4] \cup (3, +\infty)$



$$y = f(1-n)$$



$$y = f(|n|) + 1$$



$$y = |f(|n|) + 1|$$

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