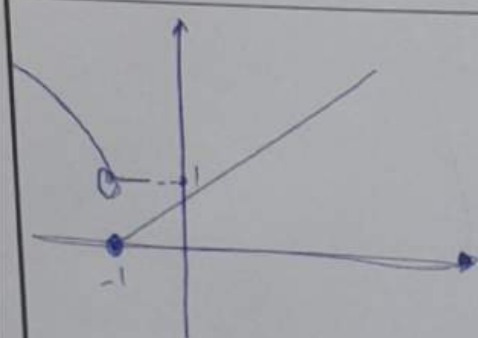




تابع است

$$x=0, f(x-2)=0 \rightarrow x = -2, 5, 7 \quad f(x)=0 \rightarrow x = 3, 5, -2$$

$$D_f = (-\infty -2] \cup [0 3) \cup [7 \infty)$$

$$x^2 - 2x \neq 0 \rightarrow x(x-2)(x+2) \neq 0 \rightarrow D_{f(x)} = \mathbb{R} - \{-2, 0, 2\}$$

(مخرج) = صفر نشود $\Delta < 0$

$$\frac{2x^2 - 3x + 2}{x^2 - 2x} \geq 0 \rightarrow \frac{-2}{\frac{1}{0} + \frac{1}{0} + \frac{2}{0}} \rightarrow D_{\sqrt{f(x)}} = (-2 0) \cup (2 \infty)$$

$$\frac{x-2}{(x-2)(x+2)(x^2+2)} \geq 0 \rightarrow \frac{-2}{\frac{1}{0} + \frac{1}{0} + \frac{2}{0}} \rightarrow D_{f(x)} = (-2 2) \cup (2 \infty)$$

$$1 - 2[-x] \neq 0 \rightarrow 2 \neq [-x] \rightarrow x \notin (-2 -2) \rightarrow D_{f(x)} = \mathbb{R} - (-2 -2)$$

$$x^4 - 2x^2 - 8 = (x^2 - 4)(x^2 + 2) = (x-2)(x+2)(x^2+2)$$

تجزیه به خارج قسمت

$$x(x-1)(x+1) \geq 0, |x|+x > 0 \rightarrow \frac{-1}{\frac{1}{0} + \frac{1}{0} + \frac{1}{0}} \rightarrow D_f = ([-1 1] \cup [1 \infty)) \cap (0 \infty) = [1 \infty)$$

$$|x|-1 \neq 0, |x+1|-x^2 \geq 0 \rightarrow (x \neq -1, 1),$$

$$-(x^2+x-2) \geq 0 \rightarrow \frac{-2}{\frac{1}{0} + \frac{1}{0} + \frac{1}{0}} \rightarrow D_f = [-2 -1) \cup (-1 1)$$

الف

$$\begin{aligned}
 x \geq r &\rightarrow \begin{cases} x-r > 0 \\ [x-r] > 0 \end{cases} \Rightarrow + \\
 r > x \geq r &\rightarrow \begin{cases} x-r > 0 \\ [x-r] = 0 \end{cases} \Rightarrow 0 \\
 x < r &\rightarrow \begin{cases} x-r < 0 \\ [x-r] < 0 \end{cases} \Rightarrow - \\
 \boxed{D_f = \mathbb{R}}
 \end{aligned}$$

$$\begin{aligned}
 x \geq r &\rightarrow |x-1|, [x-r] > 0 \\
 r \leq x < \varepsilon &\rightarrow |x-1| > 0, [x-r] = 0 \\
 x < r, x \neq 1 &\rightarrow |x-1| > 0, [x-r] < 0 \\
 x = 1 &\rightarrow |x-1| = 0, [x-r] < 0 \\
 \boxed{D_f = [r, \infty) \cup \{1\}}
 \end{aligned}$$

9

$$\begin{aligned}
 x \geq r &\rightarrow |x-r| = k \rightarrow \begin{cases} x \geq r \rightarrow x-r=k \\ r > x \geq r \rightarrow -x+r=k \end{cases} \\
 x \leq r &\rightarrow |-x+1| = k \rightarrow \begin{cases} 1 \leq x \leq r \rightarrow x-1=k \\ x \leq 1 \rightarrow -x+1=k \end{cases} \\
 \text{...} \rightarrow x-1=k=0 \quad |x=r \rightarrow r-1=k=0 \quad ?
 \end{aligned}$$

7

$x^r + 3x + r \neq 0, x-1 \neq 0, \frac{x+1}{x-1} \neq 0 \rightarrow x \neq -r, -1, 1 \rightarrow n = r$
 با توجه فرایند

$$x^r - (r \cdot r / x + r \cdot r = x^r - 4x + 9, (x-r)^r$$

بایک بار اشتباه

1

$$\left. \begin{aligned}
 x+1, x > 0, \frac{1}{x} > 1 \times \\
 \text{by } \frac{1}{x} > 0 \quad \begin{cases} x \geq 1 \\ 0 < x < 1 \end{cases} \quad \begin{cases} \frac{1}{x} > 1 \times \\ \frac{1}{x} < 1 \checkmark \end{cases}
 \end{aligned} \right\} \Rightarrow 0 < x < 1$$

9

$$D_f = (0, 1)$$

$$-\omega \leq r x^r - 1 \leq r \rightarrow -\varepsilon \leq r x^r \leq \varepsilon \rightarrow -\frac{\varepsilon}{r} \leq x^r \leq \frac{\varepsilon}{r} \rightarrow 0 \leq x \leq \sqrt[r]{\frac{\varepsilon}{r}}$$

$$D = \left[0, \sqrt[r]{\frac{\varepsilon}{r}} \right] = \left[0, \sqrt[r]{\frac{\varepsilon}{r}} \right]$$

$f(x^{r-1})$

10