

$$x^n - a + b \quad 1 < n < 3 \quad \frac{x \quad 1 \quad 3}{\rho \quad + \quad | \quad - \quad +}$$

$$x^n - 5x + \rho \rightarrow x^n - \varepsilon x + 3 \rightarrow a + b \rightarrow \varepsilon + 3 = \textcircled{4}$$

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$$y = ((k-2)x + m-1)(x-3)^2 \rightarrow (x+1)^2$$

$$k-2 < 0$$

$$k < 2, k \in \mathbb{N}$$

$$\boxed{k=1}$$

$$r_n = -1 \rightarrow n = -\frac{1}{r}$$

$$\frac{m}{n} + k \rightarrow \frac{a}{-\frac{1}{r}} + 1 = \frac{-1\varepsilon}{-\frac{1}{r}}$$

۲

$$x = \varepsilon \rightarrow (k-2)\varepsilon + m-1 = 0 \rightarrow (1-2)\varepsilon + m-1 = 0 \rightarrow m = \varepsilon$$

$$-\frac{1}{r}x^2 + 2x + 4 > \frac{4}{r}$$

$$-\frac{1}{r}x^2 + 2x + \frac{a}{r} > 0$$

$$-x^2 + \varepsilon x + a > 0$$

$$\frac{-1 \quad a}{- \quad + \quad | \quad -} \rightarrow (a, b) \rightarrow (-1, a) \Rightarrow b - a \rightarrow \delta - (-1) = \textcircled{4}$$

۳

$$x^3 - 2x^2 - x + 3 \rightarrow \text{صفر} = \begin{cases} 1 \\ \frac{1}{a} \end{cases}$$

$$\downarrow$$

$$\text{صفرها} = (-1) \rightarrow \text{صفرها} = \begin{cases} 1 \\ \frac{1}{a} \end{cases}$$

$$\Rightarrow (x-1)(x+1)(x-3)$$

$$\frac{-1 \quad 1 \quad 3}{- \quad + \quad | \quad -} \rightarrow (a, b) = (1, 3) \rightarrow \text{صفرها} = \textcircled{+2} \rightarrow f(x) = (x-1)(x+1)(x-3) \rightarrow \textcircled{-3}$$

۴

$$y = (a-1)x^2 + (a-1)x + 1$$

$$\Delta_1 \rightarrow (a-1)^2 - \varepsilon(a-1)(1) < 0 \quad (a-1)(a-2) < 0$$

$$\frac{1 \quad a}{+ \quad - \quad | \quad -} \rightarrow \textcircled{1} \rightarrow r = 1 < a < 2$$

۵

$$|a| < 2 \rightarrow a < 2 \rightarrow \boxed{a < 2}$$

$$\boxed{1, 2} \rightarrow \textcircled{\emptyset} \rightarrow \text{جواب}$$

(۳)

مضاد

فراجهایی

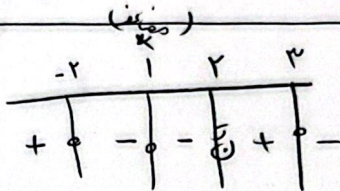
$$\frac{n(m^r + m)}{m-r} > 0 \rightarrow \frac{m^r(m^r + 1)}{m-r} > 0$$

$$\frac{r}{-1 - \frac{1}{m}}$$

$$n > r \rightarrow \{r = (r, +\infty)\}$$

6

$$\frac{(x^r - n - 4)(n-1)^r}{(x^r + n + 1)(r-n)^r} < 0$$



$$\frac{(n-r)(n+r)(n-1)^r}{(n^r + n + 1)(r-n)^r} \leq 0$$

$$\{r = [-r, r] \cup [r, +\infty)\}$$

7

$$\frac{r n^r - r n}{n^r + \varepsilon} < r \Rightarrow \frac{r n^r - r n - r n^r - \lambda}{n^r + \varepsilon} < 0 \rightarrow \frac{x^r - r n - \lambda}{x^r + \varepsilon} < 0 \rightarrow \frac{(n - \varepsilon)(n + r)}{n^r + \varepsilon} < 0$$

8

$$\frac{-r \quad \varepsilon}{+ \quad - \quad +} \rightarrow (a, b) \rightarrow (-r, \varepsilon) \rightarrow b - a \rightarrow \varepsilon - (-r) = 4$$

$$\frac{r n^r - \varepsilon n}{n+1} < 0 \rightarrow \frac{n(r n - \varepsilon)}{n+1} < 0 \rightarrow \frac{-1 \quad 0 \quad \frac{\varepsilon}{n}}{- \quad + \quad - \quad +} \rightarrow \{r = (-\infty, -1) \cup (0, \frac{\varepsilon}{r})\}$$

9

$$\frac{r n^r - \varepsilon n}{n+1} > -1 \rightarrow \frac{r n^r - r n + 1}{n+1} > 0 \rightarrow \frac{-1}{- \quad +} \rightarrow \{r = (-1, +\infty)\}$$

$$\{r = (0, \frac{\varepsilon}{r})\}$$

$$\frac{x^r - 1}{n} \leq r \rightarrow \frac{x^r - r n - 1}{n} \leq 0 \rightarrow \frac{(n-a)(n+r)}{n} \leq 0 \rightarrow \frac{-r \quad a}{- \quad + \quad - \quad +}$$

$$\{r = [-a, -r] \cup [0, a]\}$$

10