

تکلیف شماره ۲۴

K_0

برای هر x / A

$x^2 - ax + b \Rightarrow y = a(x-1)(x-3) \Rightarrow$ ضرایب x^2 یک است
 ترتیب a هم یک است.

①

$a=1, b=3 \Rightarrow x^2 - 4x + 3 \rightarrow$

$a+b=3$

②

$y = ((k-1)x + m - 1)(x - 2n)^2$

②

$-1 \Rightarrow$ ضرایب x^2 و x و $const$ مساوی است $\Rightarrow -1 - 2n = 0 \Rightarrow 2n = -1 \Rightarrow n = -\frac{1}{2}$

$k-1 < 0 \Rightarrow k < 1 \Rightarrow k < 2 \Rightarrow k < 1$

③

$(a+b) = a$ و $b = 0$

$(x+m-1) \Rightarrow$ ضرایب x و $const$ مساوی است $\Rightarrow -1 - m - 1 = 0 \Rightarrow m = -2$

$\frac{m}{n} + k = \frac{-2}{-\frac{1}{2}} + 1 = 4 + 1 = 5$

$y = -\frac{1}{4}x^2 + 2x + 4 \rightarrow y > \frac{1}{4} \Rightarrow -\frac{1}{4}x^2 + 2x + 4 > \frac{1}{4}$

③

$-\frac{1}{4}x^2 + 2x + \frac{15}{4} > 0 \Rightarrow x^2 - 8x + 15 < 0 \Rightarrow (x-3)(x-5) < 0$

$\frac{-1}{4} < 0 \Rightarrow$ $-1 < 2 < 15 \Rightarrow a = -1$
 $(-1, 15) \Rightarrow b = 15 \Rightarrow b - a = 16$

④

$f(x) = x^3 - 3x^2 - x + 3 = x^2(x-3) - (x-3) = (x-1)(x+1)(x-3)$

④

$\frac{-1}{1} \frac{1}{-1} \frac{3}{+1} \Rightarrow$ ضرایب x^2 و x و $const$ مساوی است $\Rightarrow (1, 3) \rightarrow$ نقطه $(1, 3)$ و $\frac{3+1}{1} = 4$

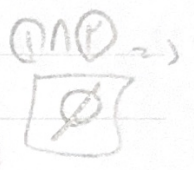
⑤

$f(1) = 1 - 1 - 1 + 3 = 2$

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

3

1) $a-1 < 0 \Rightarrow a < 1$

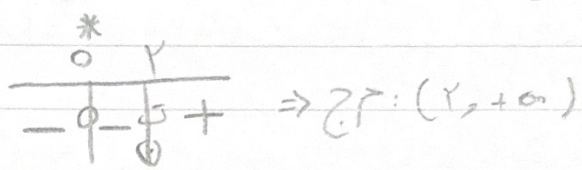


2) $\Delta < 0 \Rightarrow (a-1)^2 - 4(a-1)(a-1) < 0 \Rightarrow (0, 1)$

منه يتبين

3

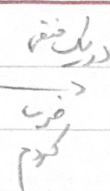
$m(m+1) > 0 \Rightarrow$



4

5

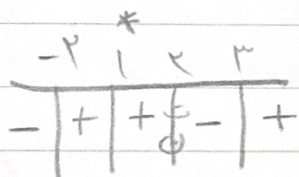
$\frac{(x-3)(x+2)(x-1)^2}{(x^2+x+1) - (x-2)^2} > 0$



$\frac{(x-3)(x+2)(x-1)^2}{(x^2+x+1)(x-2)^2} \geq 0$

7

6



$\mathcal{D} = [-2, 2] \cup [2, +\infty)$

$f(x) = \frac{x^2 - 2x}{x^2 - 4} \rightarrow f(x) < 0 \Rightarrow \frac{x^2 - 2x - x^2 - 4}{x^2 - 4} < 0$

منه يتبين $\Delta < 0 \leftarrow x^2 - 4$

8

1

$x^2 - 2x - 4 < 0 \rightarrow (x-1)(x+2) < 0 \Rightarrow \frac{-1}{-1} + \Rightarrow (-2, 1) \cup (a, b)$

$a = -2, b = 1 \Rightarrow \boxed{b - a = 3}$

$$\rightarrow \left\langle \frac{r^n - (n+1)r^0}{n+1} \right\rangle \Rightarrow \text{II) } \Rightarrow \boxed{(0, \frac{r}{n})} \quad \textcircled{5} \quad \textcircled{9}$$

$$\textcircled{1} \frac{r^n - (n+1)r^0}{n+1} > 0 \Rightarrow \frac{r^n - (n+1)r^0}{n+1} > 0 \Rightarrow \frac{-1 \quad 0 \quad \frac{r}{n}}{+ \quad | \quad - \quad | \quad +} \Rightarrow \text{ZP: } (-\infty, -1) \cup (0, \frac{r}{n})$$

$$\textcircled{1} \frac{r^n - (n+1)r^0}{n+1} > 0 \Rightarrow n+1 > 0 \Rightarrow \text{ZP: } (-\infty, -1) \cup (0, \frac{r}{n})$$

$\Rightarrow r^n - r^{n+1} \Rightarrow \Delta r = r^n$

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

$$\frac{r^n - 1}{n} > 0 \Rightarrow \frac{r^n - 1}{n} - r^0 > 0 \Rightarrow \frac{r^n - r^n - 1}{n} > 0$$

$\textcircled{5} \quad \textcircled{10}$

$$\frac{(n-d)(n+r)}{n} > 0 \Rightarrow \boxed{(-\infty, -r] \cup (0, d]}$$

$$\frac{-1 \quad 0 \quad d}{- \quad | \quad + \quad | \quad - \quad | \quad +}$$