

تکلیف شماره ۲۴

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

①

$a = 4, b = 3 \Rightarrow x^2 - 4x + 3 \rightarrow$
 $a + b = 7$

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

②

$-1 \Rightarrow$... $\rightarrow -1 - 2n > 0 \Rightarrow 2n < -1 \Rightarrow n < -\frac{1}{2}$

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

$(m + b) \leftarrow$...
 $(x + m - 1) \Rightarrow$...
 $\frac{m}{n} + k = \frac{\Delta}{-\frac{1}{k}} + 1 = -k$

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

③

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

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

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

④

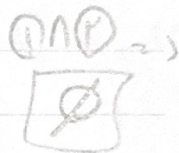
$-1 \quad 1 \quad 3$
 $- \quad | \quad + \quad | \quad - \quad | \quad +$
 \Rightarrow ... $\frac{3+1}{1} = 4$

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

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

3

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



2) $\Delta < 0 \Rightarrow (a-1)^2 - 4(a-1) < 0 \Rightarrow (a-1)(a-3) < 0 \Rightarrow (0, 3)$

من 0 الى 3

$m > 0 \Rightarrow \Delta < 0 \Rightarrow$

$\frac{m^2}{m-1} > 0 \Rightarrow$

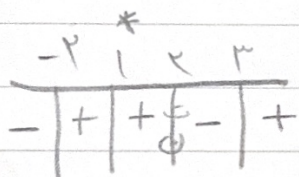
*	2
0	2
-	+
0	0

$\Rightarrow \mathcal{D} = (2, +\infty)$

4

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

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



$\Delta < 0 \Rightarrow$ من 0 الى 3

$\mathcal{D} = [-2, 2) \cup [3, +\infty)$

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$f(x) = \frac{x^2 - 2x}{x^2 - 1} \rightarrow f(x) < 0 \Rightarrow \frac{x^2 - 2x - (x^2 - 1)}{x^2 - 1} < 0$

من 0 الى 3

6

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

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

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

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

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

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

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

$$\frac{(n-d)(n+r)}{n} > 0 \Rightarrow \frac{-1 \quad 0 \quad d}{- \quad + \quad - \quad +} \Rightarrow \boxed{(-\infty, -r] \cup (0, d]}$$