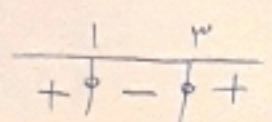


۱۲, ω



$I \rightarrow 0 < -a + b \Rightarrow (-a + b = -1) \quad (1)$

$II \rightarrow 0 = 9 - 3a + b \Rightarrow -3a + b = -9$

$$\begin{cases} 3a - 3b = 3 \\ -3a + b = -9 \end{cases}$$

$-2b = -6$

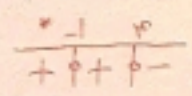
$b = 3$

$a = 4$

$a + b = 3 + 4 = 7$

5

در این مسئله $a = -1$



$((k-2)x + m-1)(x - \frac{3n}{-1}) > 0$

$kx - 2x + m - 1$

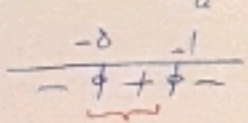
$3n = -1$

$n = -\frac{1}{3}$

~~$\frac{m}{n} + k = \frac{-1}{-1/3} + k = 3 + k$~~

$-\frac{1}{4}x^2 + 2x + 9 > \frac{5}{4}$

$(-2)x - \frac{1}{4}x^2 + 2x + \frac{9}{4} > 0$



$-1 < x < 0$
 $(a, b) = (-1, -1)$

$b - a = 0 - (-1) = 1$

$x^2 - 4x - 5 < 0$

$(x-5)(x+1) < 0$

$a + b = c$

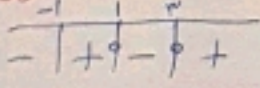
$-\frac{c}{a} = -\frac{5}{-1} = 5$

$\frac{d}{b} = \frac{-1}{-1} = 1$

$b - a = -1 - (-1) = 0$

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

$x(x^2 - 1) - 3(x^2 - 1) \rightarrow (x^2 - 1)(x - 3) < 0$



$(1, 3) \rightarrow$... $(\frac{3}{2}, \frac{1}{2})(\frac{1}{2}, \frac{3}{2}) = -\frac{3}{4}$

$\Delta < 0 \rightarrow \Delta = (a-1)^2 - 3(a-1) = a^2 - 9a + 4$

$a < 0 \rightarrow a - 1 < 0 \rightarrow a < 1$

$(a-1)(a-4) < 0 \Rightarrow a < 1 \text{ or } a > 4$

~~$e.f. = (-\infty, 1)$~~

$I \cap II = \emptyset$
 $a < 1, a < 4$

$$\frac{m(m^r+m)}{m-r} > 0 \rightarrow \frac{m^r(m^r+1)}{m-r} > 0 \quad \textcircled{9}$$

~~$\frac{+}{-} \frac{0}{r} \frac{-}{-} \frac{r}{+}$~~

~~$(-\infty, 0] \cup (r, +\infty)$~~

$m-r > 0 \rightarrow m > r$

$$\frac{(x-r)^r (x+r)^{-r} (x-1)^r}{(x^r+x+1)(r-x)^r}$$

~~$\frac{-}{-} \frac{r}{+} \frac{1}{+} \frac{r}{+} \frac{r}{-} \frac{r}{+}$~~

$[-r, r) \cup [r, +\infty)$

$\textcircled{10}$

$$\frac{rx^r - rx}{x^r + r} < r \quad rx^r - rx < rx^r + r$$

$$\frac{-r}{+} \frac{r}{-} \frac{r}{+}$$

$$-r < x < r$$

$$rx^r - rx - 1 < 0 \quad (x-r)(x+r) < 0$$

$\textcircled{11}$

$b-a = r - (-r) = 2r$

$$-1 < \frac{rx^r - rx}{x+1} < 0 \rightarrow \frac{rx^r - rx}{x+1} < 0$$

$\textcircled{12}$

$$-1 < \frac{rx^r - rx}{x+1} \rightarrow -x-1 < rx^r - rx$$

$$rx^r - rx + 1 > 0 \rightarrow \Delta < 0 \quad (-1, 0] \cup [\frac{r}{r}, +\infty)$$

$x+1 > 0 \rightarrow x > -1$

$I \cap II (0, \frac{r}{r})$

$$\frac{x^r - 1}{x} \leq r \quad x^r - 1 \leq rx \quad \frac{x^r - 1}{x} - r \leq 0$$

$$\frac{-r}{+} \frac{r}{-} \frac{r}{+}$$

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

$-r < x < r$

$(-\infty, r] \cup (0, \infty)$

$\textcircled{13}$