

$3n = 1 \Rightarrow n = -\frac{1}{3}$ $m-1 = -1 \Rightarrow m = 0$ $k-2 = 1 \Rightarrow k = 3$ (P)

$-\frac{1}{3} + 3 = 12$

$\frac{1}{x} x^2 + 2x + 4 > \frac{1}{x} \rightarrow -\frac{1}{x} x^2 + 2x + \frac{4}{x} > 0 \xrightarrow{x-2} x^2 - 4x - 4 < 0$ (3)

$(x-0)(x+1) < 0 \rightarrow \frac{-1}{+1} \frac{4}{+} \Rightarrow (a, b) = (-1, 4) \quad b-a = 4 - (-1) = 5$

$a-1 < 0 \rightarrow a < 1$ (5)

$\Delta < 0 \rightarrow a^2 + 1 - 2a - 4a + 4 < 0 \rightarrow a^2 - 4a + 5 < 0 \rightarrow (a-1)(a-4) < 0$

$(-\infty, 1) \cap (1, 4) = \emptyset$

$\frac{m(m^3+m)}{m-2} \rightarrow \frac{m^4+m^2}{m-2} > 0$ هدا، مثبت $\Rightarrow m > 2 \rightarrow m \in (2, +\infty)$ (6)

$\frac{(x-3)(x+2)(x-1)(x-1)}{(x^2+x+1)(2-x)^3} < 0$ $\frac{-2}{+1} \frac{1}{-1} \frac{2}{-1} \frac{3}{+1} \Rightarrow [-2, 2) \cup [3, +\infty)$ (7)

$\frac{3x^2 - 2x - 2x^2 - 1}{x^2 + 1} < 0 \rightarrow \frac{x^2 - 2x - 1}{x^2 + 1} = \frac{(x-1)(x+2)}{x^2 + 1} < 0$ $\frac{-2}{+1} \frac{1}{-1} \frac{1}{+1} \frac{2}{+1} \Rightarrow (-2, 1)$ (8)

$x \in (-2, 1) \Rightarrow a = -2, b = 1 \rightarrow b-a = 1 - (-2) = 3$

$\frac{3x^2 - 4x + x + 1}{x+1} \rightarrow \frac{3x^2 - 3x + 1}{x+1} \xrightarrow{\Delta < 0 \rightarrow \text{ریشه ندارد}} x > -1 \rightarrow (-1, +\infty)$ (9)

$\frac{3x^2 - 4x}{x+1} < 0 \rightarrow \frac{x(3x-4)}{x+1} < 0$ $\frac{-1}{-1} \frac{0}{+1} \frac{4}{-1} \frac{3}{+1} \Rightarrow \cap = (0, \frac{4}{3})$

$\frac{x^2 - 10 - 3x}{x} < 0 \rightarrow \frac{(x-5)(x+2)}{x} < 0$ $\frac{-2}{-1} \frac{5}{+1} \frac{0}{-1} \frac{3}{+1} \Rightarrow (-\infty, -2) \cup (0, 5]$ (10)

$x \in (-\infty, -2) \cup (0, 5]$

