

$x^2 >$ ضرب علامت

$$\frac{x_1}{+} \frac{x_2}{-} \frac{x_3}{+} \quad \frac{1}{+} \frac{2}{-} \frac{3}{+}$$

$y = a(x^2 - 5x + 6) = x^2 - 5x + 6 \Rightarrow a = 1$
 $b = 3$ ✓

$a + b = 1 + 3 = 4$ ✓

$(-1 - 2n)^2 = 0 \Rightarrow K \in \mathbb{N} \Rightarrow K > 0$
 $-1 - 2n = 0 \Rightarrow K - 2 < 0 \Rightarrow K = 1$ ✓
 $-1 = 2n \Rightarrow n = -\frac{1}{2}$ ✓
 علامت تغییر می کند

$K < 2$ ضرب علامت
 $K - 2 < 0 \Rightarrow K = 1$ ✓
 $-x + m - 1 = 0 \Rightarrow m = 1$ ✓
 $-x + m - 1 = 0 \Rightarrow m = 1$ ✓

$\frac{5}{-1} + 1 = -1 \cdot 5 + 1 = -4$ ✓

$-\frac{1}{4}x^2 + 2x + 6 > \frac{1}{4}$
 $-\frac{1}{4}x^2 + 2x + \frac{23}{4} > 0$
 $x^2 - 8x - 23 < 0$

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

$\frac{-1}{+} \frac{0}{-} \frac{1}{+}$
 $(-1, 0)$ ✓
 $0 - (-1) = 1$ ✓

$y = x^3 - 2x^2 - x + 3 = (x-1)(x+1)(x-3) < 0$
 $(x-1)(x+1)(x-3) = -3$ ✓

$x^3 - 2x^2 - x + 3 \mid x-1$
 $\begin{array}{r} x^3 - 2x^2 - x + 3 \\ -x^3 + x^2 + x - 3 \\ \hline -x^2 - 2x + 6 \\ +x^2 + 2x - 2 \\ \hline -4x + 4 \\ +4x - 4 \\ \hline 0 \end{array}$

$\frac{-1}{-} \frac{1}{+} \frac{3}{+}$
 $x > 0 \Rightarrow x + 1 = 2$

$a - 1 < 0 \Rightarrow a < 1$
 $(-\infty, 1)$

$0 < 0 \Rightarrow (a-1)^2 - 4(a-1) < 0 \Rightarrow (a-1)(a-5) < 0$
 $a^2 - 6a + 5 < 0$

$\frac{1}{+} \frac{5}{-}$

$(-\infty, 1) \cap (1, 5) = \emptyset$ ✓
 $a \in \emptyset$

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

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

$m^2+1 \neq 0$
 $m^2 \neq -1$
 $m \neq \pm i$
 $m \neq \pm (-i)$

$$\frac{0 \quad 2}{-\frac{1}{2} \quad -\frac{1}{2} \quad +}$$

$$m \in (2, +\infty) \checkmark$$

2
6

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

$$\frac{-2 \quad 1 \quad 2 \quad 2}{+\frac{1}{2} \quad -\frac{1}{2} \quad -\frac{1}{2} \quad + \quad \frac{1}{2} \quad -}$$

$$[-2, 2) \cup [2, +\infty) \checkmark$$

$x \in \mathbb{R}$
 $0 < 0$
 $0 > 0$

2
7

$$\frac{2x^2-2x}{x^2+5} < 2$$

$$\frac{2x^2-2x}{x^2+5} - 2 < 0$$

$$\frac{2x^2-2x-2x^2-10}{x^2+5} < 0$$

$$\frac{2x^2-2x-10}{x^2+5} < 0$$

$$\frac{(x-5)(x+2)}{x^2+5} < 0$$

$$\frac{-2 \quad 5}{+\frac{1}{2} \quad -\frac{1}{2} \quad +}$$

$$(-2, 5)$$

$$5 - (-2) = 7 \checkmark$$

$x \in \mathbb{R}$
 $0 < 0$
 $0 > 0$

2
8

$$\frac{2x^2-5x}{x+1} < 0$$

$$\frac{x(2x-5)}{x+1} < 0$$

$$\frac{-1 \quad 0 \quad 5}{-\frac{1}{2} \quad +\frac{1}{2} \quad -\frac{1}{2} \quad +}$$

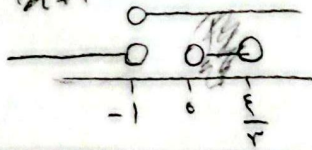
$$(-\infty, -1) \cup (0, \frac{5}{2})$$

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

$$\frac{2x^2-5x}{x+1} + 1 > 0$$

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

$$\frac{-1}{-\frac{1}{2} \quad +}$$



$$(0, \frac{5}{2}) \checkmark$$

2
9

$$\frac{x^2-1}{x} - 2 \leq 0$$

$$\frac{x^2-1-2x}{x} \leq 0$$

$$\frac{(x-2)(x+1)}{x} \leq 0$$

$$\frac{-2 \quad 0 \quad 1}{-\frac{1}{2} \quad + \quad \frac{1}{2} \quad - \quad \frac{1}{2} \quad +}$$

$$(-\infty, -2] \cup (0, 1) \checkmark$$

2
10