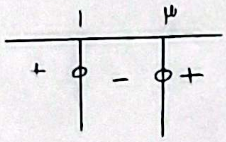
۲۰

نام و نام خانوادگی ..نگین اسلامی‌نژاد.......... پاسخنامه تشریحی تکلیف شماره ..۲۶... کلاس ..دهم پنجشنبه........

۱ (۴)



$x^2 - ax + b$

$(x-1)(x-3)$

$x^2 - 4x + 3 = x^2 - ax + b$

$a=4 \,,\, b=3 \Rightarrow a+b=7$

۲ (۴)

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

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

$k-2<0 \to k<2 \xrightarrow{\text{طبیعی}} k=1$

$-x^2 + m - 1 = 0 \to m=5$

$\frac{5}{-\frac{1}{3}} + 1$

$-15+1 = -14$

۳ (۴)

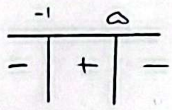
$-\frac{1}{2}x^2 + 2x + 6 > \frac{7}{2}$

$2(-\frac{1}{2}x^2 + 2x + 6 - \frac{7}{2} > 0)$

$-x^2 + 4x + 12 - 7 > 0$

$-x^2 + 4x + 5 > 0 \to x^2 + 4x - 5 > 0 \to (x+5)(x-1) > 0$

$5 = \frac{-5}{-1} \quad \frac{1}{-1} = -1$



$(-1, 5) = (a, b) \quad b-a = 5+1 = 6$

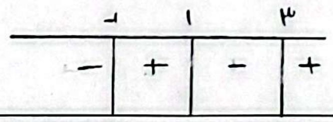
۴ (۴)

$x^3 - 3x^2 - x + 3 < 0$

$-x^2(-x+3) - x + 3 < 0$

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

$3 \quad x = \pm 1$



$(1,3) \to f(2) = 8 - 12 - 2 + 3 = -3$

۵ (۴)

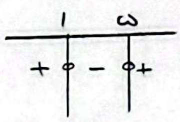
$(a-1)x^2 + (a-1)x + 1 < 0$

$\Delta < 0 \to \Delta = b^2 - 4ac = (a-1)^2 - 4(a-1) < 0$

$a^2 + 1 - 2a - 4a + 4 < 0$

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

$a - 1 < 0 \to a < 1$

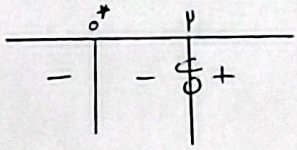


$(1,5)$

$a<1 \cup (1,5) \to \varnothing$ ← جواب

۶

$\frac{m(m^3+m)}{m-2} = \frac{m \times m(m^2+1)}{m-2} > 0$ ($m \neq 2$)



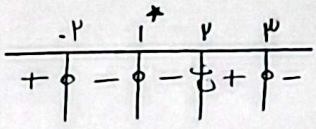
$(2, +\infty)$

گزینه ۳

۷

$\frac{(x^2-x-6)(x-1)^2}{(x^2+x+1)(2-x)^3} \leq 0$

x^2+x+1: $\Delta = b^2-4ac = 1-4 < 0$ ⊕ همواره



$[-2, 2] \cup [3, +\infty)$

گزینه ۳

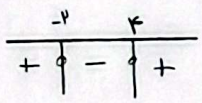
۸

$\frac{3x^2-2x}{x^2+4} < 2 \rightarrow \frac{3x^2-2x}{x^2+4} - 2 < 0 \rightarrow \frac{3x^2-2x-2(x^2+4)}{x^2+4} < 0 \rightarrow \frac{3x^2-2x-2x^2-8}{x^2+4} < 0$

$\rightarrow \frac{x^2-2x-8}{x^2+4} < 0$ (x^2+4 ⊕ همواره)

$x^2-2x-8 < 0$

$(x-4)(x+2) < 0$ ($x=4$, $x=-2$)



$(-2, 4) = (a, b)$

$a = -2, b = 4$

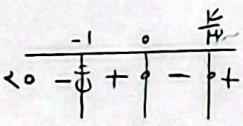
$b-a = 4-(-2) = 4+2 = 6$

گزینه ۴

۹

$-1 < \frac{3x^2-4x}{x+1} < 0$

$\frac{3x^2-4x}{x+1} < 0$ ($x = \frac{4}{3}$ یا $x = 0$)

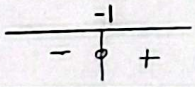


$(-\infty, -1) \cup (0, \frac{4}{3})$

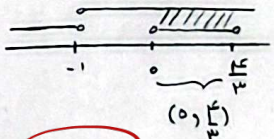
$0 < \frac{3x^2-4x}{x+1} + 1$

$0 < \frac{3x^2-4x+x+1}{x+1} \Rightarrow 0 < \frac{3x^2-3x+1}{x+1}$ ($x \neq -1$)

$3x^2-3x+1$: $\Delta = b^2-4ac = 9-12 = -3 < 0$ ⊕ همواره



$(-1, +\infty)$

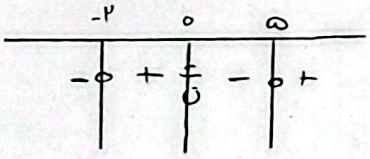


$(0, \frac{4}{3})$

گزینه ۳

۱۰

$\frac{x^2-10}{x} \geq 3 \rightarrow \frac{x^2-10}{x} - 3 \geq 0 \rightarrow \frac{x^2-10-3x}{x} \geq 0 \rightarrow \frac{x^2-3x-10}{x} \geq 0 \rightarrow \frac{(x-5)(x+2)}{x} \leq 0$ ($x \neq 0$)



$(-\infty, -2] \cup (0, 5]$

گزینه ۲