نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ..26.. کلاس ..13..

۱

$|x|$ x^2-ax+b $a,b=?$

$\hookrightarrow <0$

$\hookrightarrow x>3, x<1 \rightarrow$ جواب $+ \begin{matrix} x=1 \\ x=3 \end{matrix}\Big\} \Rightarrow \begin{matrix} 9-3a+b=0 \\ 1-a+b=0 \end{matrix}\Big\} \begin{matrix} 3a-b=9 \\ -a+b=-1 \end{matrix}$

$2a=8$

$\Rightarrow a=4, b=3 \quad 4+3=\boxed{7}$

۲

$y=((k-2)x+m-1)(x-3x)^2$ $\quad \begin{matrix} -4 & 4 \\ + & b+ \quad b- \end{matrix}$ $\quad \frac{m}{n}+k=?$

$3n=-1 \Rightarrow x=n=-\frac{1}{3}, \frac{(1-m)}{k-2}=4 \Rightarrow 4k-8=1-m \Rightarrow m=9-4k$

$\Rightarrow y=(k-2)x(x-4)(x+1)^2 \Rightarrow m=5, k=1, n=-\frac{1}{3} \Rightarrow (5)+(-\frac{1}{3})+1=$

$\boxed{-14}$

۳

$y=-\frac{1}{2}x^2+2x+6 \quad (a,b) \rightarrow \frac{7}{2}$

$-\frac{1}{2}x^2+2x+6>\frac{7}{2} \xrightarrow{\times 2} -x^2+4x+12>7 \Rightarrow -x^2+4x+5>0$

$\frac{-4\pm\sqrt{16+20}}{-2} = \begin{cases} \frac{-4-6}{-2}=5 \rightarrow b \\ \frac{-4+6}{-2}=-1 \rightarrow a \end{cases}$ $\quad \max b-a \rightarrow 5-(-1)=\boxed{6}$

۴

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

$\Rightarrow (1,3)$ بازه $\Rightarrow 2 \Rightarrow f(2)=8-12-2+3=\boxed{-3}$

۵

$(a-1)x^2+(a-1)x+1 \rightarrow$ مثبت $\quad a-1<0 \Rightarrow a<1$

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

$\begin{matrix} 1 & 5 \\ + & 0- \quad 0+ \end{matrix} \Rightarrow a \in (1,5) \quad \cap \Rightarrow \emptyset$

$\frac{m(m^3+m)}{m-2} \geq 0 \Rightarrow \frac{m(m^3+m)}{m-2} > 0 \Rightarrow \frac{m^2(m^2+1)}{m-2} > 0 \Rightarrow$

	0	2
−	0	+
+	∥	+
+	0	+

$\Rightarrow m \in (2, +\infty)$ ۶

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

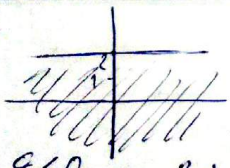
x^2+x+1 همواره مثبت است ($\Delta < 0$) ۷

$\Rightarrow$

	1	2	3
+	0	+	0
+	0	+	∥
−	∥	−	0

$\Rightarrow [3, +\infty)$

$f(x) = \frac{3x^2-2x}{x^2+4}$ (a, b) $y = 2$



$\Rightarrow f(x) = \frac{3x^2-2x}{x^2+4} < 2$

$3x^2 - 2x < 2x^2 + 8 \Rightarrow x^2 - 2x - 8 < 0 \Rightarrow \frac{2 \pm \sqrt{4+32}}{2}$ ۸

$\frac{2}{2} = 4 \rightarrow b$

$-\frac{4}{2} = -2 \rightarrow a$

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

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

$\Rightarrow$

	−1
−	∥
+	0

$\Rightarrow (-1, +\infty)$ ۹

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

	−1	0	$\frac{4}{3}$
−	∥	+	0
+	0	+	+

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

① ∩ ② $\Rightarrow (0, \frac{4}{3})$

$\frac{x^2-10}{x} < 3 \Rightarrow \frac{x^2-10}{x} - 3 < 0 \Rightarrow \frac{x^2-10-3x}{x} < 0 \Rightarrow \frac{(x+2)(x-5)}{x} < 0$

$\Rightarrow$

	−2	0	5
−	0	+	0
+	∥	+	0
−	0	−	∥

$\Rightarrow (-\infty, -2] \cup (0, 5]$ ۱۰