سوال ۴ و ۵ را جابه جا نوشتم.

Page : ( ) یا رسا اکبر ۲۷ پسران دوم ۵ چهارشنبه Date : 14

۱. $1 < x < 2$ → مثبت ، $x < 1$ $x > 2$ → نامثبت

$\Rightarrow \begin{matrix} x=1 \\ x=2 \end{matrix}\}$ صفر $\Rightarrow \begin{matrix} 9-2a+b=0 \\ 1-a+b=0 \end{matrix}\} \begin{matrix} 2a-b=9 \\ -a+b=-1 \end{matrix}$

$a=8 \Rightarrow a=4$ $b=3$ $4+3=7$ ✓ (۲)

۲. $2x=-1 \Rightarrow x=-\frac{1}{2}$ ، $\frac{|1-m|}{k-2}=4$

$\Rightarrow 4k-8=1-m \Rightarrow m=9-4k$ $\Rightarrow y=(k-2)(x-5)(x+1)^2 \Rightarrow m=5$ (۲)

$\Rightarrow k=1$ ، $x=-\frac{1}{2} \Rightarrow (5 \div (-\frac{1}{2}))+1=-11$ ✓

۳. $y=-\frac{1}{2}x^2+2x+6 \Rightarrow -x^2+4x+12=0 \Rightarrow -x^2+4x-5=0$

$\Rightarrow (x-5)(x+1) \Rightarrow (-1,5) \Rightarrow 5-(-1)=6$ ✓ (۲)

۴. $a-1<0 \Rightarrow a<1$

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

$\begin{matrix} 1 & 5 \\ + & - & + \end{matrix} \Rightarrow a \in (1,5)$ $\Big\} \cap \Rightarrow \emptyset$ تهی (۲)

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

$\Rightarrow (1,2)$ بازه $x=2 \Rightarrow f(2)=8-8-2+2=-2$ ✓ (۲)

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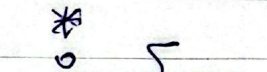
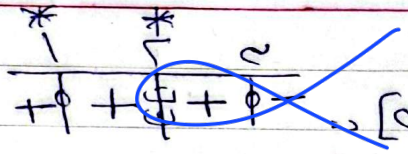
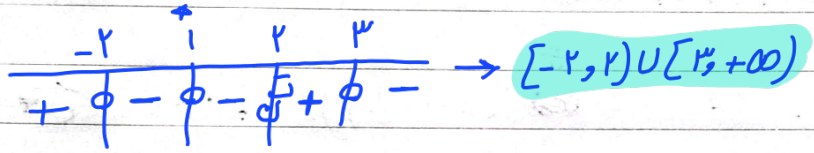
۶- $\frac{m(m^2+m)}{m-2} > 0 \Rightarrow \frac{m^2(m+1)}{m-2} > 0$ (۲)

$\Rightarrow$  $\Rightarrow (2, +\infty)$ ✓

۷- $\frac{(x-2)(x+2)(x-1)^2}{(x^2+x+1)(2-x)^2} \geq 0 \Rightarrow$  $\Rightarrow [2, +\infty)$ (۱)

جواب نمودار زیر ۵ منفی است



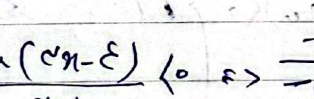
$\rightarrow [-2, 1) \cup [3, +\infty)$

۸- $\frac{(x^2-2x)}{x^2+2} < 2 \Rightarrow x^2 - 2x - 8 < 0 \Rightarrow (x+2)(x-4)$ (۲)

$\Rightarrow (-2, 2)$ $\Rightarrow b - a = 2 - (-2) = 4$ ✓

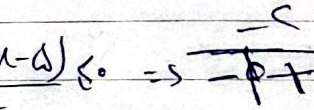
۹- $\frac{x^2-2x}{x+1} > -1 \Rightarrow \frac{x^2-2x}{x+1} + \frac{x+1}{x+1} > 0 \Rightarrow \frac{x^2-x+1}{x+1} > 0 \Rightarrow \frac{-1}{-\Delta+}$

$\Rightarrow (-1, +\infty)$

$\frac{x^2-2x}{x+1} < 0 \Rightarrow \frac{x(x-2)}{x+1} < 0 \Rightarrow$  $\Rightarrow (-\infty, -1) \cup (0, 2)$ (۲)

$\Rightarrow (0, 2)$ ✓

۱۰- $\frac{x-1}{x} < 2 \Rightarrow \frac{x-1}{x} - 2 < 0 \Rightarrow \frac{x-1-2x}{x} < 0$

$\Rightarrow \frac{(x+1)(x-1)}{x} < 0 \Rightarrow$  $\Rightarrow [-\infty, -1] \cup (0, 1]$

(۲) ✓