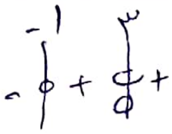
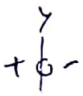
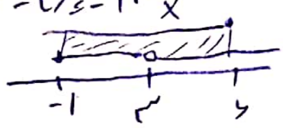
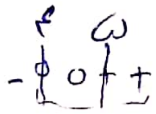
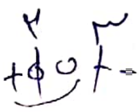
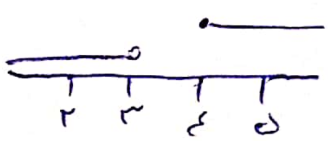
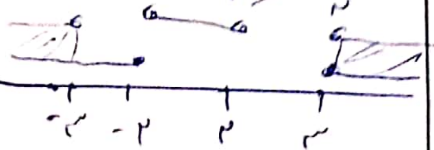
نام و نام خانوادگی ...[illegible]... پاسخنامه تشریحی تکلیف شماره .... کلاس ....

۱	$2(x-1)^2+(y+3)^2+k-2-9=0$ $2(x-1)^2+(y+3)^2+k-11=0$ $\quad k=(-\infty,11]$ $2(x-1)^2+(y-3)^2=11-k \to 11-k\geq 0 \Rightarrow 11\geq k$
۲	if $x=a \to a^2+4a=3a+2 \to a^2+a-2=0$ $\Delta=b^2-4ac=1+8=9$ $\frac{-1\pm\sqrt{9}}{2}$, $a>0$ $\Big\}$ $a=\frac{-1+\sqrt{9}}{2}=\frac{-1+3}{2}=1$ $1\geq 1 \to 1^2+4(1)=5$ (x^2+4x)
۳	$\lvert x+1\rvert\geq 2$ < $x+1\geq 2 \to x\geq 1$; $-2\geq x+1 \to -3\geq x$ $\to 18-b=a-6$ $18+6=a+b=24$
۴	$6x-a\geq 0$, $6x\geq a$, $x\geq \frac{a}{6}$ $b-3x\geq 0$, $b\geq 3x$, $\frac{b}{3}\geq x$ $\frac{a}{6}\leq x\leq \frac{b}{3} \to [\frac{a}{6},\frac{b}{3}]=[2]$ $\frac{a}{6}=2 \to a=12$ $\quad \frac{b}{3}=2 \to b=6$ $\frac{b}{a}=\frac{6}{12}=\frac{1}{2}$
۵	الف)   $\Delta=b^2-4ac$ $\quad 4-(-6)=-12$ ✗ $[-1,6]-[3]$  ب)    $D_f=\varnothing$

الف) $\Delta = b^2 - 4ac \to 1 - 4(-6)(1) = 25$ $\quad x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{1 \pm 5}{2} \to 3 ,\ -2$ $169 + 4(-36)(1) = 25 \quad x^2 = \frac{13 \pm 5}{2} \to 9 \to \pm 3 \ ,\ 4 \to \pm 2$  $(-\infty, -3) \cup (3, \infty)$ ب) $\sqrt{\frac{(x-1)(x-2)(x+2)}{(x-3)(x+1)(x+3)}}$ $\quad (-\infty, -3) \cup [-2, -1) \cup [1, 2] \cup (3, \infty)$	۶
الف) $[-x] - 2 \geq 0 \quad [-x] \geq 2 \quad -x \geq 2 \quad x \leq -2 \quad (-\infty, -2]$ ب) $5x^2 + 6 \neq 0 \quad 5x^2 = -6 ,\ x^2 = -\frac{6}{5}$ * / $\Delta = b^2 - 4ac \Rightarrow 4 + 12 = 16$ $\frac{2 \pm \sqrt{16}}{2} \to 3 ,\ -1 \quad [3, 4) \quad [-1, 0)$ $\quad (-\infty, -1) \cup (0, 3) \cup [4, \infty)$	۷
الف) $D_f = \mathbb{R} - \{k\pi, k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{4}\}$ $\quad \tan x \neq 1 \quad \cot, \tan x \neq 0$ ب) $1 - 4\sin^2 x \geq 0 \quad 1 \geq 4\sin^2 x \Rightarrow \frac{1}{4} \geq \sin^2 x \to \frac{1}{2} \geq \sin x$ $D_f = [2k\pi + \frac{5\pi}{6}, 2k\pi + \frac{\pi}{6}]$	۸
الف) $x - 1 > 0$ ① $\quad 1 - \log_{\frac{1}{2}}^{x-1} \geq 0 \quad 1 \geq \log_{\frac{1}{2}}^{x-1} \to x - 1 \geq \frac{1}{2}$ $x > 1 \quad D_f = [\frac{3}{2}, \infty) \quad x \geq \frac{3}{2}$ ب) $x^2 - x \geq 0 \quad x(x-1) \geq 0 \quad 1 - \log_4^{x^2 - 3x} \neq 0 \quad x^2 - 3x - 4 \neq 0$ $1 \neq \log_4^{x^2 - 3x} \quad 4 \neq x^2 - 3x \quad \frac{3 \pm 5}{2} \to 4 ,\ -1$ $D_f = (-\infty, 0) - [-1] \cup (3, \infty) - [4]$	۹
الف) $2^{4x - x^2} - 8 \geq 0 \quad 2^{4x - x^2} \geq 8 \to 2^{4x - x^2} \geq 2^3 \to 4x - x^2 \geq 3$ $4x - x^2 - 3 \geq 0 \quad \Delta = b^2 - 4ac \to 16 - 12 = 4 \quad \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-4 \pm 2}{-2} \to 1 ,\ 3$ $D_f = [1, 3]$ ب) $\frac{3x + 5}{2x + 3} \in W \quad 3x + 5 = 2xw + 3w \quad 3x - 2xw = 3w - 5 \to x = -\frac{3w - 5}{2w - 3}$ $D_f = \{x \mid x = -\frac{3k - 5}{2k - 3} , k \in W\}$	۱۰

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