

نام و نام خانوادگی ایلیا مسلمی پاسخنامه تشریحی تکلیف شماره ۲ کلاس پایه هفتم A

$$2x^2 + y^2 - 4x + 6y + k = 0$$

$$2(x-1)^2 + (y+3)^2 = 2x^2 - 4x + 2 + y^2 + 6y + 9 \Rightarrow$$

$$k = 2 + 9 = 11$$

$$x=a \Rightarrow a^2 + fa = 3a + 2 \Rightarrow a^2 + a - 2 = 0$$

$$\xrightarrow{a+b+c=0} a = \langle -2, 1 \rangle \rightarrow \text{غلط}$$

$$f(1) = 1^2 + 1 \times 1 = 2$$

$$x = -3 \Rightarrow 2x^2 - b = a + 2x \Rightarrow 18 - b = a - 6$$

$$\Rightarrow a + b = 24$$

$$x = 12 \Rightarrow \begin{cases} 4x - a = 0 \Rightarrow 12 - a = 0 \Rightarrow a = 12 \\ b - 3x = 0 \Rightarrow b - 36 = 0 \Rightarrow b = 36 \end{cases}$$

$$\frac{b}{a} = \frac{36}{12} = 3$$

الف) $\frac{x+1}{|x-3|} \geq 0$ $\frac{-1}{-1+1} + \frac{1}{-1+1} = \frac{0}{0}$ $[-1, +\infty) - \{3\} \rightarrow A$

$\frac{4-x}{x^2+2x+5} \geq 0$ $\frac{4}{+ \quad -} \rightarrow B$

۲) $[x] - 4 \geq 0 \Rightarrow [x] \geq 4 \Rightarrow x \geq 4 \rightarrow A$
 $2 - [x] \geq 0 \Rightarrow [x] \leq 2 \Rightarrow x < 3 \rightarrow B$

$A \cap B \rightarrow [-1, 4] - \{3\}$
 $D_f = [-1, 3) \cup (4, +\infty)$

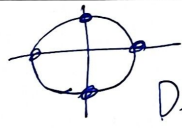
$A \cap B \Rightarrow D_f = \emptyset$

الف) $\frac{x^2 - x - 4}{x^2 - 13x + 44} \geq 0 \Rightarrow \Delta = 25 \Rightarrow x = \frac{1 \pm 5}{2} = -2$
 $-3 \leq x^2 - 13x + 44 \Rightarrow x^2 = t \Rightarrow t^2 - 13t + 44 = 0 \Rightarrow t = 4 \Rightarrow x = \pm 2$
 $Df = (-\infty -2) \cup (2 -\infty) \cup (2 + \infty)$

ب) $x^3 - 2x^2 - 5x + 4 \geq 0$ جمع ضرایب برابر است $(x-1)(x-3)(x+2)$
 $x^3 + 2x^2 - 5x - 4$ جمع ضرایب برابر است $(x+1)(x-2)(x+4)$
 $(x-1)(x-3)(x+2) \geq 0$ زوج باشد برابر است $Df = (-\infty -2) \cup (2-1) \cup (12)$
 $(x+1)(x-2)(x+4) \geq 0$ فرد باشد برابر است $Df = (-\infty -2) \cup (2-1) \cup (12)$

الف) $[x] - 2 \geq 0 \Rightarrow [x] \geq 2 \Rightarrow -x \geq 2 \Rightarrow x \leq -2$
 $Df = (-\infty -2]$

ب) $[x] = t \Rightarrow t^2 - 2t - 4 \neq 0 \Rightarrow t = \frac{2 \pm \sqrt{4 + 16}}{2} = 1 \pm \sqrt{5}$
 $\Rightarrow [x] \leq -1 \Rightarrow [x] \neq 0, -1 \Rightarrow x \neq [-1, 0) \cup [0, 1)$
 $\Rightarrow Df = (-\infty -1) \cup [0, 1) \cup [1, +\infty)$

الف) $\frac{\cos x}{\sin x} + 1 \Rightarrow \sin x \neq 0, \cos x \neq 0$ 
 $Df = \mathbb{R} - \left\{ \frac{k\pi}{2} \right\}$

ب) $1 - \sqrt{\sin x} \geq 0 \Rightarrow \sqrt{\sin x} \leq 1 \Rightarrow \sin x \leq \frac{1}{4}$
 $\Rightarrow \frac{1}{4} \leq \sin x \leq \frac{1}{4}$ 
 $Df = \left[k\pi - \frac{\pi}{6}, k\pi + \frac{\pi}{6} \right]$

الف) $x - 1 > 0 \Rightarrow x > 1 \rightarrow A$
 $1 - \log \frac{1}{x-1} \geq 0 \Rightarrow \log \frac{1}{x-1} \leq 1 \Rightarrow x - 1 \geq \frac{1}{e} \Rightarrow x \geq \frac{1}{e} + 1 \rightarrow B$
 $A \cap B \Rightarrow Df = \left[\frac{1}{e} + 1, +\infty \right)$

ب) $x^2 - x \geq 0 \Rightarrow x(x-1) \geq 0 \Rightarrow x \leq 0 \text{ or } x \geq 1$
 $1 - \log \frac{x^2 - 2x}{x^2 - 3x} \neq 0 \Rightarrow \log \frac{x^2 - 2x}{x^2 - 3x} \neq 1 \Rightarrow \frac{x^2 - 2x}{x^2 - 3x} \neq e \Rightarrow x \neq \frac{2e}{e-1}$
 $x^2 - 3x > 0 \Rightarrow x(x-3) > 0 \Rightarrow x < 0 \text{ or } x > 3$
 $A \cap B \cap C = \mathbb{R} - \left\{ \frac{2e}{e-1} \right\}$
 $Df = (-\infty -1) \cup (-1, 0) \cup (3, e) \cup (e, +\infty)$

الف) $x^2 - x - 1 \geq 0 \Rightarrow x^2 - x \geq 1 \Rightarrow x^2 - x - 1 \geq 1 \Rightarrow x^2 - x - 2 \geq 0$
 $a+b+c=0 \Rightarrow \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \Rightarrow Df = [-2, 1]$

ب) $\frac{2x+0}{2x+e} \in W \Rightarrow 2x+0 = 2wx+e \Rightarrow 2x = \frac{e}{1-2w}$
 $x(2-2w) = e \Rightarrow x = \frac{e}{2-2w} \Rightarrow Df = \left\{ x \mid x = \frac{ek}{2-2k}, k \in W \right\}$