

14,5

نام و نام خانوادگی پاسخنامه تشریحی تکلیف شماره 2 کلاس 6:30 تا 4:30

$$2x^2 - 4x = 2(x^2 - 2x) \Rightarrow 2(x^2 - 2x) + 2[(x-1)^2 - 1] = 2(x-1)^2 - 2$$

$$y^2 + 6y = (y+3)^2 - 9 \Rightarrow 2(x^2 - 2x) + (y^2 + 6y) + k = 0$$

$$\Rightarrow 2(x-1)^2 + (y+3)^2 = 11-k$$

هزاره بیست و یک $11-k > 0 \Rightarrow k < 11$

نقطه $(1, -3) \leftarrow$

$k=11$

14,5

$$a^2 + 4a = 3a + 2 \Rightarrow a = 1 \text{ و } a = -2$$

غیر قابل قبول $a = -2$
قابل قبول $a = 1$

$$f(1) = 1^2 + 4 \times 1 = 1 + 4 = 5$$

✓

5

$$|x+1| \geq 2 \Rightarrow x+1 \leq -2 \text{ و } x+1 \geq 2$$

$$x+1 \leq -2 \Rightarrow x \leq -3 \quad x+1 \geq 2 \Rightarrow x \geq 1$$

$$a-b = 12 \quad a+b = 4$$

$$a-b+a+b = 16 \Rightarrow 2a = 16 \Rightarrow a = 8 \quad 8+b = 4 \Rightarrow b = -4$$

$$a+b = 4 \quad 11-b = a-4 \rightarrow a+b = 22$$

1

3

$$6x - a \geq 0 \Rightarrow 6x \geq a \Rightarrow x \geq \frac{a}{6} \quad \text{و} \quad \frac{a}{6} = 2 \Rightarrow a = 12$$

$$b - 3x \geq 0 \Rightarrow 3x \leq b \Rightarrow x \leq \frac{b}{3} \quad \text{و} \quad \frac{b}{3} = 2 \Rightarrow b = 6$$

$$\frac{b}{a} = \frac{6}{12} = \frac{1}{2}$$

✓

5

4

الف) $|x-3| \neq 0 \Rightarrow x \neq 3$ و $x+1 \geq 0 \Rightarrow x \geq -1$ ①

مربع هشت است $x^2 + 2x + 4 = x^2 + 2x + 1 + 3 = (x+1)^2 + 3 \Rightarrow$

$6-x \geq 0 \Rightarrow x \leq 6$ ② ① $\cap$ ② $\Rightarrow \text{وفاقی} = [-1, 3) \cup (3, 6]$

ب) $[x] - 4 \geq 0 \Rightarrow [x] \geq 4 \Rightarrow x \geq 4$ ① $2 - [x] \geq 0 \Rightarrow [x] \leq 2 \Rightarrow x < 3$ ②

① $\cap$ ② $\Rightarrow [4, \infty) \cap (-\infty, 3) = \emptyset$

5

منهج هنيهة شبي اس $x^4 + 13x^2 + 36 = (x^2 + 4)(x^2 + 9)$ (الف)

$$x = \frac{1 \pm \sqrt{1+24}}{2} = \frac{1 \pm 5}{2} \Rightarrow x = 3 \quad x = -2$$

$$\begin{array}{c} -2 \quad 3 \\ + \quad - \quad + \end{array}$$

$$D_F = (-\infty, -2] \cup [3, \infty)$$

ب) $x \in (-\infty, -2] \cup [-2, 1] \cup [3, \infty) \rightarrow$ بجز نقايه
 $x^3 - 2x^2 - 5x - 6 = 0$

(الف) $[-x] - 2 \geq 0 \Rightarrow [-x] \geq 2$ $D_F = (-\infty, -2]$

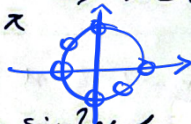
ب) $n^2 - 2n - 3 = (n-3)(n+1) \Rightarrow n = 3, n = -1$

$[x] = 3 \Rightarrow 3 \leq x < 4$ $[x] = -1 \Rightarrow -1 < x \leq 0$

$$D_F = (-\infty, -1) \cup [0, 3) \cup [4, \infty)$$

(الف) $k \in \mathbb{Z}, \sin x \neq 0 \Rightarrow x \neq k\pi$
 $\cos x \neq 0 \Rightarrow x \neq \frac{\pi}{2} + k\pi$

$$D_F = \mathbb{R} - \left\{ \frac{k\pi}{2} \mid k \in \mathbb{Z} \right\}$$



ب) $1 - 4 \sin^2 x \geq 0 \Rightarrow 4 \sin^2 x \leq 1 \Rightarrow \sin^2 x \leq \frac{1}{4} \Rightarrow |\sin x| \leq \frac{1}{2}$

$$D_F = \left[2k\pi, 2k\pi + \frac{\pi}{6} \right] \cup \left[2k\pi + \frac{5\pi}{6}, 2k\pi + \frac{7\pi}{6} \right] \cup \left[2k\pi + \frac{11\pi}{6}, 2k\pi + 2\pi \right]$$

(الف) $1 - \log_{\frac{1}{2}} x \geq 0 \rightarrow 1 \geq \log_{\frac{1}{2}} x \rightarrow x - 1 \leq 1/2 \rightarrow x \leq 3/2$
 $x - 1 > 0 \rightarrow x > 1$ $D_F = (1, 3/2]$

ب) $1 \neq \log_4 x^2 - 3x$ $4 = x^2 - 3x$

$$x^2 - 3x - 4 = 0 \rightarrow (x-4)(x+1) = 0 \Rightarrow x = 4, x = -1$$

$$x^2 - 3x > 0 \Rightarrow x(x-3) > 0 \Rightarrow x < 0 \text{ or } x > 3$$

(الف) $2^{4x-x^2} - 8 > 0 \rightarrow 2^{4x-x^2} > 8 \rightarrow 2^{4x-x^2} \geq 2^3 \rightarrow 4x - x^2 \geq 3 \rightarrow (x-3)(x-1)$

$$D = [1, 3]$$

ب) $\frac{3x+5}{2x+4} \in \mathbb{N}$ $3x+5 = 2xw + 4w$

$$3x + 2xw = 4w - 5 \Rightarrow x(3 + 2w) = 4w - 5$$

$$\rightarrow x = \frac{4w-5}{3+2w}$$

$$D = \left\{ x \mid x = \frac{4k-5}{3-2k}, k \in \mathbb{N} \right\}$$