

۱۰/۷۵

نام و نام خانوادگی مدرسه
پاسخنامه تشریحی تکلیف شماره ۲... کلاس یازدهم
ب

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

$$2x^2 - 4x + k = -(y^2 + 4y)$$

$$2x^2 - 4x + k = -(y^2 + 4y)$$

$$2x^2 - 4x + k = -(y^2 + 4y)$$

$$2x^2 - 4x + 2 + y^2 + 4y + 9 - 2 - 9 = -k$$

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

فقط به ازای $k = 11$
تابع نقطه $(1, -3)$ به دست می آید

if $\Rightarrow x \geq a$

$$d^2 + 4d = 2d + d + 2$$

$$d^2 + d - 2 = 0$$

$$(d-1)(d+2) \geq 0$$

$$\begin{cases} d \geq 1 \\ d \leq -2 \end{cases} \Rightarrow f(1) = 0 \quad \checkmark$$

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$$|x+1| \geq 2$$

$$|x+1| \geq 2$$

$$+x+1 \leq -2$$

$$x \leq -3 \Rightarrow x > 1$$

$$-c \leq x \leq -1 \quad a+2x$$

$$x \geq 1 \Rightarrow x \geq b$$

$$x \leq -c \Rightarrow x \leq b$$

if $x \leq -c$
 $a+b = 11-b$
 $a+b = 11 \quad \checkmark$

$$\sqrt{4x-a} \Rightarrow 4x-a \geq 0 \rightarrow x \geq \frac{a}{4}$$

if $x \geq 2 \Rightarrow a \leq 8$

if $x = 2$

$$\sqrt{b-4x} \rightarrow x \leq \frac{b}{4}$$

$$\begin{matrix} b-4x \geq 0 \\ b \geq 4x \\ b \geq 8 \end{matrix}$$

$$\rightarrow \frac{a}{4} \leq x \leq \frac{b}{4}$$

$\frac{a}{4} = \frac{b}{4} = 2 \rightarrow a=12, b=8$

$$\frac{\sqrt{x+1}}{|x-1|} + \sqrt{\frac{4-x}{x^2+x+2}}$$

۱) $\sqrt{\frac{x+1}{|x-1|}}$

۲) $\sqrt{\frac{4-x}{x^2+x+2}}$

۳) $\sqrt{\frac{4-x}{x^2+x+2}}$

if $x \geq 1 \Rightarrow \frac{x+1}{|x+1|} = 1 \quad \checkmark$

$\frac{4-x}{x^2+x+2} \geq 0$

$x^2+x+2 \geq 0$

$x \geq -1$

$x \geq 1 \Rightarrow x \geq 1$

$x \geq 1 \Rightarrow x \geq 1$

الف) $\frac{x^2 - x - 6}{x^2 - 10x + 24} \geq 0$ $\frac{(x-6)(x+2)}{(x-4)(x-9)} \geq 0$ $\frac{(x-6)(x+2)}{(x-4)(x-9)} \geq 0$ $D_f = (-\infty, -2) \cup (4, 6) \cup (9, +\infty)$ $\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100\}$

ب) $\frac{x^2 - 2x^2 - 5x + 4}{x^2 + 2x^2 - 5x + 4} = \frac{(x-1)(x-3)(x+2)}{(x+1)(x+3)(x-2)}$ $\frac{-2 \quad -2 \quad -1 \quad 1 \quad 2 \quad 3}{+ \quad | \quad - \quad + \quad | \quad - \quad + \quad | \quad - \quad +}$

الف) $[x] - 2 \geq 0$ $[x] \geq 2 \Rightarrow x \in [2, +\infty)$ $D_f = (-\infty, -2]$ $\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100\}$

ب) $\frac{5x^2 + 4}{[x]^2 - 2[x] - 6} \geq 0$ $[x] \neq 3 \rightarrow x \notin [3, 4)$ $[x] \neq -1 \rightarrow x \notin [-1, 0)$ $D_f = (-\infty, -1) \cup (3, 4) \cup (4, +\infty)$

الف) $\frac{\cot x + 1}{\tan x + 1} \geq 0$ $\sin x \neq 0 \Rightarrow x \neq k\pi$ $\tan x \neq -1 \Rightarrow x \neq k\pi - \frac{\pi}{4}$ $D_f = \{x \in \mathbb{R} \mid x \neq k\pi, x \neq k\pi - \frac{\pi}{4}\}$

ب) $1 - \sqrt{\sin x} \geq 0$ $\sqrt{\sin x} \leq 1$ $\frac{1}{\sqrt{\sin x}} \geq 1$ $D_f = [k\pi - \frac{\pi}{2}, k\pi + \frac{\pi}{2}]$

الف) $x - 1 > 0 \Rightarrow x > 1$ $\sqrt{1 - \log x} \geq 0$ $1 \geq \log x \Rightarrow x \leq 10$ $D_f = (1, 10]$

ب) $x^2 - 9 \geq 0$ $x^2 \geq 9 \Rightarrow x \in (-\infty, -3] \cup [3, +\infty)$ $D_f = \mathbb{R} - \{0, 3\}$

الف) $\sqrt{x^2 - x} - 1 \geq 0$ $\sqrt{x^2 - x} \geq 1$ $x^2 - x \geq 1$ $x^2 - x - 1 \geq 0$ $D_f = [1, 3]$

ب) $\frac{x^2 + 2}{x^2 + 4} \in \mathbb{N}$ $x^2 = \frac{4n - 2}{2n - 2} \Rightarrow \{x \mid x = \frac{4n - 2}{2n - 2} \wedge n \in \mathbb{N}\}$