

نام و نام خانوادگی: ..... (صبر ازراعت) ..... پاسخنامه تشریحی تکلیف شماره ۳ ... کلاس ... (نام دبیر) A .....

الف)  $y^3 - x = 2x^2 \rightarrow y^3 = 2x^2 + x \rightarrow y^3 = x(2x+1) \Rightarrow \begin{cases} y_1^3 = (2x+1)x \\ y_2^3 = (2x+1)x \end{cases} \rightarrow y_1 = y_2 \checkmark$

ب)  $|y| + x^2 = x + 3 \rightarrow |y| = -x^2 + x + 3 \rightarrow |y| = -(x^2 - x - 3) \Rightarrow \begin{cases} |y_1| = -(x^2 - x - 3) \\ |y_2| = -(x^2 - x - 3) \end{cases} \rightarrow y_1 = -y_2 \times$

ج)  $\sqrt{x-2} + |y-2| = 0 \rightarrow |y-2| = -\sqrt{x-2} \Rightarrow \begin{cases} |y-2|_1 = -\sqrt{x-2} \\ |y-2|_2 = -\sqrt{x-2} \end{cases} \rightarrow y_1 - 2 = \pm(y_2 - 2) \Rightarrow \begin{cases} y_1 = 2 - y_2 \\ y_1 = y_2 \end{cases} \times$

د)  $x = \cos y \xrightarrow[\text{مثال شنبه}]{x=0} 0 = \cos y \Rightarrow \begin{cases} y = 90^\circ \\ y = 270^\circ \end{cases} \times$

الف)  $y = \frac{x+2}{x^2-2x} = \frac{(x+2)}{x(x-2)} \rightarrow x(x-2) \neq 0 \rightarrow D_f = \mathbb{R} - \{0, 2\}$

ب)  $y = \frac{x+2}{x^2-7x+12} \Rightarrow x^2-7x+12 \neq 0 \rightarrow D_f = \mathbb{R} \xrightarrow{\text{دلیل}} x^2-7x+12=0 \rightarrow x = \frac{7 \pm \sqrt{49-48}}{2} \rightarrow x = \frac{7 \pm 1}{2} \rightarrow x = 4, 3$

ج)  $y = \frac{x+2}{x^2+x+2} \Rightarrow x^2+x+2 \neq 0 \rightarrow D_f = \mathbb{R} \xrightarrow{\text{دلیل}} x^2+x+2=0 \rightarrow x = \frac{-1 \pm \sqrt{1-8}}{2} \rightarrow x = \frac{-1 \pm \sqrt{-7}}{2} \rightarrow x = \frac{-1 \pm i\sqrt{7}}{2}$

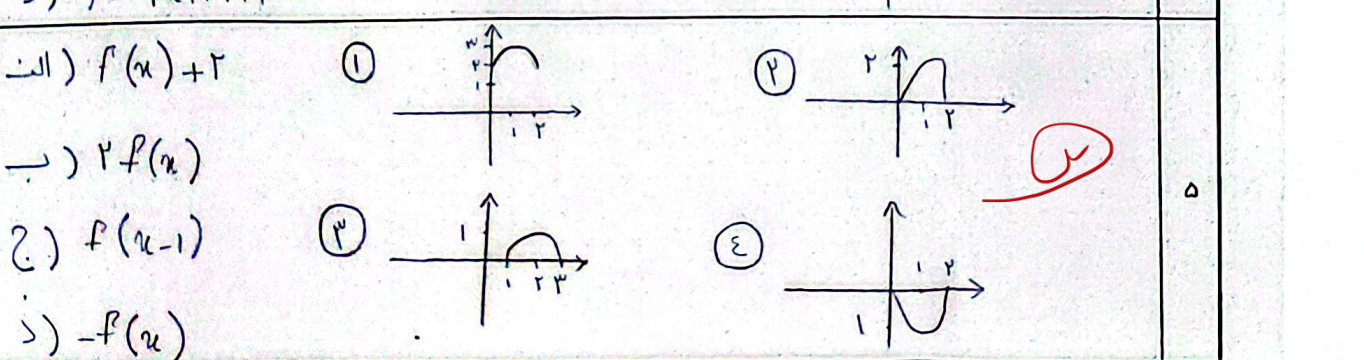
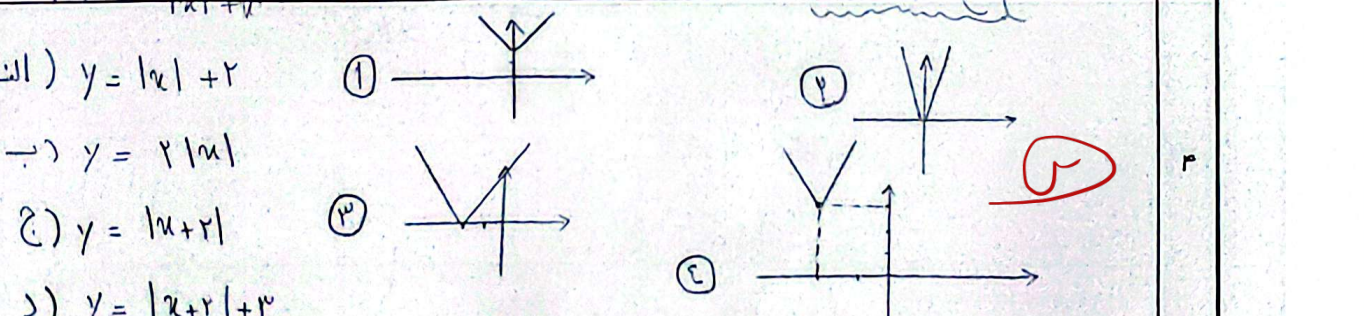
د)  $\frac{x+2}{x^2-5x+2} \Rightarrow x^2(x^2-5) = x^2(x+2)(x-2) \neq 0 \rightarrow D_f = \mathbb{R} - \{0, -2, 2\}$

الف)  $y = \sqrt{4-x} + \sqrt{x-2} \Rightarrow \begin{cases} 4-x \geq 0 \rightarrow x \leq 4 \\ x-2 \geq 0 \rightarrow x \geq 2 \end{cases} \Rightarrow D_f = [2, 4]$

ب)  $y = \frac{3x+1}{x^2+1} \Rightarrow x^2+1 \neq 0 \rightarrow x^2 \neq -1 \rightarrow D_f = \mathbb{R}$

ج)  $y = \frac{\sqrt{x-2}}{x-2} \Rightarrow \begin{cases} x-2 \geq 0 \rightarrow x \geq 2 \\ x-2 \neq 0 \rightarrow x \neq 2 \end{cases} \rightarrow D_f = [2, +\infty) - \{2\}$

د)  $y = \frac{3x+3}{|x|+x} \Rightarrow |x|+x \neq 0 \rightarrow |x| \neq -x \rightarrow D_f = \mathbb{R} - \{0\}$





الف)  $y = (x-2)(x-3)(x-4)$

$$\frac{2}{-} \frac{3}{+} \frac{4}{-} \frac{5}{+}$$

ب)  $y = (x-2)(x-3)(x-3)(x-4)$

$$\frac{2}{+} \frac{3}{-} \frac{3^*}{-} \frac{4}{+}$$

3

الف)  $y = \frac{(x-2)(x-4)}{(x-3)}$

$$\frac{2}{-} \frac{3}{+} \frac{4}{-} \frac{5}{+}$$

5

ب)  $y = \frac{(x-2)(x-4)}{(x-3)(x-3)}$

$$\frac{2}{+} \frac{3}{-} \frac{3^*}{-} \frac{4}{+}$$

الف)  $y = \frac{x^3 - 3x^2 + 2}{x-3} = \frac{(x-1)(x+1)(x-2)}{(x-3)}$

$$\frac{1}{+} \frac{1}{-} \frac{2}{-} \frac{3}{+}$$

9

ب)  $y = \frac{x^3 - 3x^2 + 2}{x^2 - 2x + 3} = \frac{(x-1)(x-2)}{(x-1)(x-3)}$

$$\frac{1}{+} \frac{2}{-} \frac{3}{-} \frac{4}{+}$$

الف)  $y = \frac{x^3 - x^2}{x^2 + x + 2} = \frac{(x^2 + x)(x-1)}{x^2 + x + 2} = \frac{x^2(x+1)(x-1)}{x^2 + x + 2}$

$$\frac{-1}{+} \frac{0^*}{-} \frac{1}{-} \frac{2}{+}$$

5

ب)  $y = \frac{x + 3x + 2}{x^2 + 2x + 3} \Rightarrow$

$$\frac{0}{+} \frac{1}{+} \frac{2}{+}$$

الف)  $\sqrt{\frac{x^3-1}{x^3-x}} \Rightarrow x^3-1 \geq 0 \rightarrow x \geq 1$

0, 1, 2

$x(x+1)(x+2) > 0 \rightarrow x = \mathbb{R}^+ - \{0, -1, -2\}$

$\rightarrow x > 1 \rightarrow D_f = (1, +\infty)$

ب)  $\sqrt{\frac{x^2-14}{x^2-5x+6}} \Rightarrow x^2-14 \geq 0 \rightarrow x \geq \sqrt{14}$

0, 1, 2

$(x-6)(x-1) > 0 \rightarrow x = \mathbb{R} - [1, 6]$

$\rightarrow D_f = (\sqrt{14}, +\infty)$