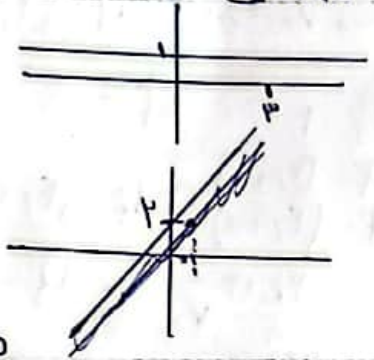


17, 25

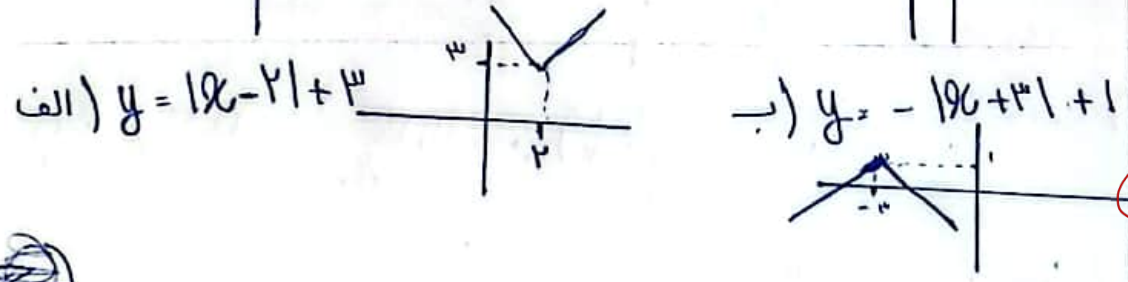
نام و نام خانوادگی محمدپارسا پاپاکی جنابیت پاسخنامه تشریحی تکلیف شماره ۳۰۰ کلاس دوم ریاضی - شبانه

الف) $y^3 - x = 2x^2 \rightarrow y_1^3 = x_1 + 2x_1^2$
 $y_2^3 = x_2 + 2x_2^2$ } $x_1 = x_2 \rightarrow y_1^3 = y_2^3 \rightarrow y_1 = y_2$ تابع است
 ب) $|y| + x^2 = x + 3 \rightarrow |y| = x - x^2 + 3 \xrightarrow{x=0} |y| = 3 \Rightarrow y = 3, y = -3$ تابع نیست
 ج) $\sqrt{x-4} + |y-2| = 0 \xrightarrow{x=4, y=2}$ تابع است
 د) $x = \cos y \xrightarrow{x=0} y = 90^\circ, 270^\circ$ تابع نیست



$y = ax + b$
 $y = x \Rightarrow a + 2b = 1 + 0 = 1$ (الف)

$y = x^2 + ax + b$
 $\begin{vmatrix} 1 & a & b \\ 1 & 2 & 1 \end{vmatrix} \rightarrow \text{ext} \begin{vmatrix} -b & 2 \\ 1 & 2a \end{vmatrix} = 2 \rightarrow 2a = -b$
 $\begin{vmatrix} -\Delta & 1 \\ 1 & 2a \end{vmatrix} = 1 \rightarrow \frac{b^2 - 4ac}{4a} \rightarrow 2a = -b^2 + 4ac$
 $\Rightarrow -b = -b^2 + 4ac \Rightarrow b(b-1) = -4ac \Rightarrow b=1, c=-1, a=-1 \Rightarrow -1+1=0$
 الف) $y = x^2 + 1$ ب) $y = -x^2 + 1$



$y = \frac{x+1}{x^2-1}$ متنى
 $\rightarrow -b \pm \sqrt{b^2-4ac} = \frac{1 \pm \sqrt{1-4(-1)(1)}}{2} = \frac{1 \pm \sqrt{5}}{2} \neq 0 \Rightarrow D_f = \mathbb{R}$

الف) $y = \frac{x+1}{x^2-1} = \frac{(x+1)}{(x-1)(x+1)} \rightarrow \frac{1}{x-1} \rightarrow D_f = (-1, 0) \cup (1, +\infty)$

ج) $y = \frac{x+1}{x^2+x+1} \rightarrow -b \pm \sqrt{b^2-4ac} = \frac{-1 \pm \sqrt{1-4(1)(1)}}{2} = \frac{-1 \pm \sqrt{-3}}{2} \neq 0 \Rightarrow D_f = \mathbb{R}$

$y = \frac{x+1}{x^2-1} = \frac{(x+1)}{(x-1)(x+1)} \rightarrow \frac{1}{x-1} \rightarrow D_f = (-1, 0) \cup (1, +\infty)$

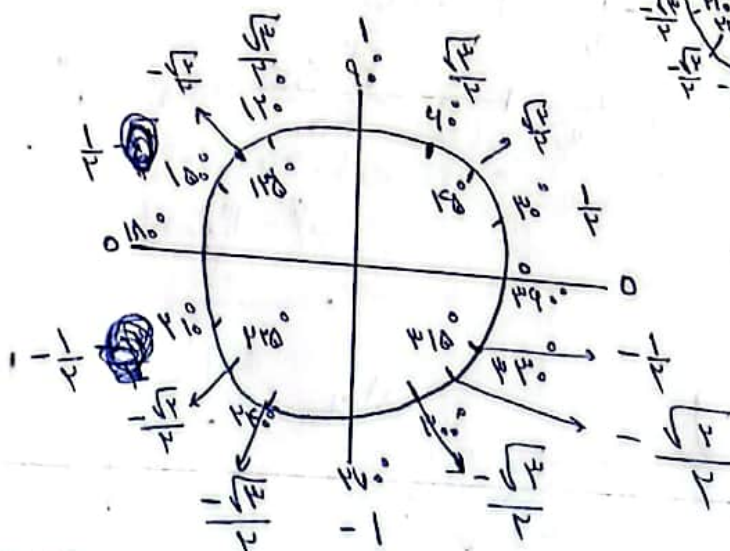
الف) $y = \sqrt{4-x} + \sqrt{x-2}$ متنى
 $\begin{cases} 4-x \geq 0 \Rightarrow D_f = (-\infty, 4] \\ x-2 \geq 0 \Rightarrow D_f = [2, +\infty) \end{cases} \Rightarrow D_f = [2, 4]$

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

ج) $y = \frac{\sqrt{x-2}}{x-4} \rightarrow x-2 \geq 0 \Rightarrow D_f = (2, +\infty)$
 $x-4 \neq 0 \Rightarrow D_f = (4, +\infty) \cap D_f = (4, +\infty)$

د) $y = \frac{2x+3}{|x|+x^2} \rightarrow x \neq 0 \Rightarrow D_f = (-\infty, -1] \cup (0, +\infty)$

1, 2, 3



الف) $\cos \frac{7\pi}{4} = -\frac{1}{4} \rightarrow -\frac{1}{4} = \sin \frac{\pi}{4} = \sin \frac{\pi}{4} / \frac{\pi}{4}$

ب) $\cos \frac{11\pi}{4} = \frac{\sqrt{3}}{4} \rightarrow \frac{\sqrt{3}}{4} = \sin \frac{\pi}{4} = \sin \frac{\pi}{4} / \frac{\pi}{4}$

$$\frac{x + \epsilon}{x^r - \epsilon x} \quad x^r - \epsilon x \neq 0 \quad D_f = R - \{0, \pm \gamma\}$$

$$x(x - \epsilon) \neq 0$$

$$x \neq 0$$

$$x = \epsilon$$

$$\frac{x + \epsilon}{x^e - \epsilon x^r} = \quad x^r - \epsilon x^r \neq 0$$

$$x^r(x^r - \epsilon) \neq 0$$

$$x \neq 0$$

$$x^r - \epsilon \neq 0 \rightarrow x^r \neq \epsilon$$

$$R = \{0, \pm \gamma\}$$

$$x \neq \pm \gamma$$

$$\frac{\sqrt{x - \gamma}}{x - \epsilon}$$

$$x - \gamma > 0 \rightarrow x > \gamma$$

$$x - \epsilon \neq 0 \rightarrow x \neq \epsilon$$

$$[\gamma, +\infty) - \{\epsilon\}$$

$$\frac{\gamma x + \gamma^r}{|x| + x} \rightarrow R - \{0\}$$