نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۳ ..... کلاس .....

۱

الف) $y^2 - x = 2x^2 \rightarrow y^2 = 2x^2 + x \rightarrow \begin{cases} y_1^2 = 2x_1^2 + x_1 \\ y_2^2 = 2x_2^2 + x_2 \end{cases} \xrightarrow{x_1 = x_2} y_1^2 = y_2^2 \rightarrow y_1 = y_2$ ✓

ب) $|y| + x^2 = x + 2 \rightarrow |y| = 2 \rightarrow y = \pm 2$ ✗

ج) $\sqrt{x-1} + |y-2| = 0 \rightarrow x = 1 \;,\; y = 2$ ✓

د) $x = \cos y \rightarrow y = \pi \;,\; 2\pi \;, \ldots$ ✗

۲

الف) $y = C \qquad y = 1 \;,\; x = 2$

$\hookrightarrow C = 1 \rightarrow \boxed{y = 1}$

ب) $y = ax + b \rightarrow 2 = 2(1) + b \rightarrow 2 = 2 + b$

$\hookrightarrow b = 0 \rightarrow \boxed{y = 2x}$

۳

الف) $y = x \qquad a = 1 \;,\; b = 0 \rightarrow a + 2b = 1 + 2(0) \rightarrow a + 2b = \boxed{1}$

ب) $x = \frac{-b}{2a} \rightarrow x = \frac{-a}{2} \xrightarrow{-2} 2 = \frac{a}{2} \rightarrow a = 4 \rightarrow 1 = 2^2 + a(2) + b \rightarrow 1 = 4 + 2a + b \rightarrow 1 = 4 + 2(-4) + b$

$1 = -4 + b \rightarrow b = 5 \rightarrow a + 2b = -4 + 2(5) \rightarrow a + 2b = \boxed{6}$

۴

الف) $y = 2x + 1$

ب) $y = -2x + 1$

ج) $y = x^4$

د) $y = x^0$

۵

الف) $y = |x - 2| + 3$

ب) $y = -|x + 3| + 1$

۶

الف) $y = \frac{x+2}{x^2 - 2x}$

$x^2 - 2x \neq 0 \rightarrow x(x-2) \neq 0 \rightarrow x \neq 0 \;,\; x \neq 2 \rightarrow D_f = (-\infty, 0) \cup (0, 2) \cup (2, +\infty)$

ب) $y = \frac{x+2}{x^2 - 7x + 12}$

$x^2 - 7x + 12 = 0 \rightarrow (x-3)(x-4) = 0 \rightarrow D_f = \mathbb{R} - \{3, 4\} \rightarrow (-\infty, 3) \cup (3, 4) \cup (4, +\infty)$

ج) $\frac{x+2}{x^2 + x + 2}$

$x^2 + x + 2 \neq 0 \rightarrow D_f = \mathbb{R}$

د) $\frac{x+2}{x^3 - 2x^2}$

$x^2(x-2) \neq 0 \rightarrow D_f = \mathbb{R} - \{0, 2\} \rightarrow (-\infty, 0) \cup (0, 2) \cup (2, +\infty)$

۷

الف) $y = \sqrt{4 - x} + \sqrt{x - 2}$

$4 - x \geq 0 \rightarrow 4 \geq x$

$x - 2 \geq 0 \rightarrow 2 \leq x$

$\rightarrow D_f = [2, 4]$

ب) $y = \frac{2x+1}{x^2+1}$

$x^2 + 1 \neq 0 \rightarrow x^2 \geq 0 \rightarrow D_f = \mathbb{R}$

ج) $y = \frac{\sqrt{x-2}}{x-3}$

$x - 2 \geq 0 \rightarrow x \geq 2$

$x - 3 \neq 0 \rightarrow x \neq 3$

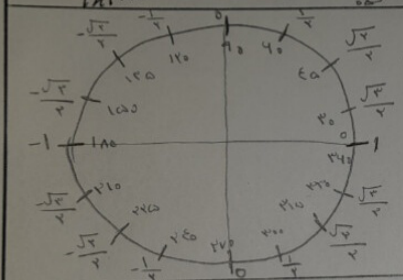
$\rightarrow D_f = [2, 3) \cup (3, +\infty)$

د) $y = \frac{2x+2}{|x| + x^2}$

$|x| + x^2 \neq 0 \rightarrow |x| \geq 0 \;,\; x^2 \geq 0 \rightarrow D_f = \mathbb{R} - \{0\}$

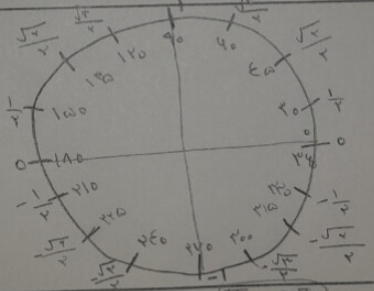
۸

سینوس



۹

سینوس



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الف) $\cos \frac{2\pi}{3} = -\frac{1}{2} \rightarrow -\cos \frac{2\pi}{3} = \frac{1}{2} \rightarrow \sin = \frac{1}{2} \rightarrow \boxed{\frac{\pi}{4} \;,\; \frac{5\pi}{4}}$

ب) $\cos \frac{11\pi}{4} = \frac{\sqrt{2}}{2} \rightarrow -\cos \frac{11\pi}{4} = -\frac{\sqrt{2}}{2} \rightarrow \sin = -\frac{\sqrt{2}}{2} \rightarrow \boxed{\frac{5\pi}{4} \;,\; \frac{7\pi}{4}}$