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نام و نام خانوادگی آ. ... (ایندی) پاسخنامه تشریحی تکلیف شماره (۳) کلاس صفحه (A)



الف) $y_1^2 = 2x_1^2 - x_1$ $y_2^2 = 2x_2^2 - x_2$
 $x_1 = x_2 \rightarrow y_1^2 = y_2^2 \rightarrow y_1 = y_2$ — تابع است

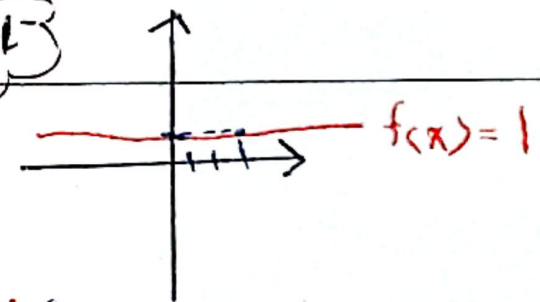
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ب) $x \geq 5 \rightarrow |y| = -20 + 1 \rightarrow |y| = -19$ — تابع نیست

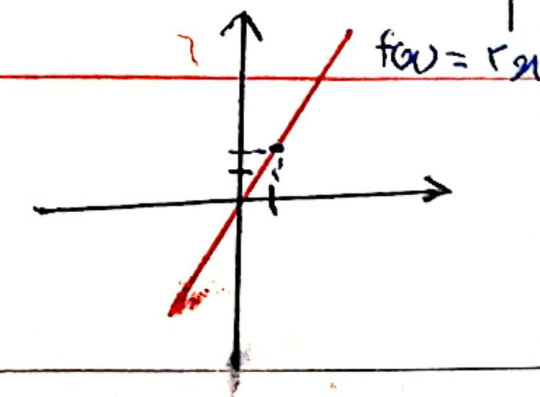
ج) $x = 4 \rightarrow |y - 2| = 0 \rightarrow y = 2$ — نقطه است — تابع است

د) $x = 0 \rightarrow 0 = \cos y \rightarrow y = \frac{\pi}{2} \text{ و } \frac{3\pi}{2}$ — تابع نیست

ه) $y = k$ — تابع ثابت — $y = 1 \rightarrow f(x) = 1$ — مناسبت



و) $y = ax + b$ — تابع خطی — $a = 2$ — مناسبت
 $y = 2x + b \rightarrow 2 = 2 + b \rightarrow b = 0$
 $x = 1, y = 2$ — تابع — $y = 2x$ — مناسبت — $f(x) = 2x$

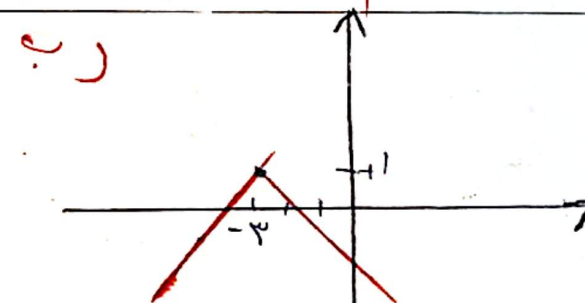
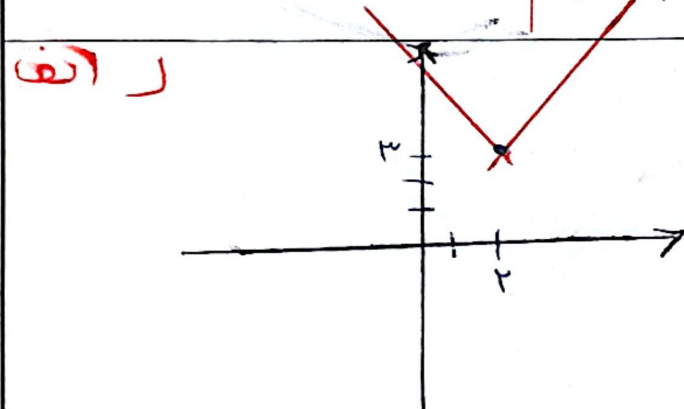
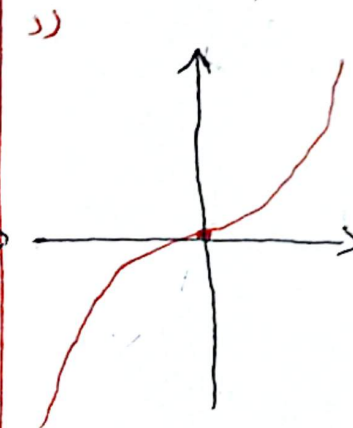
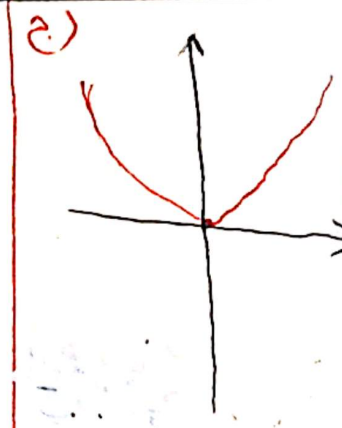
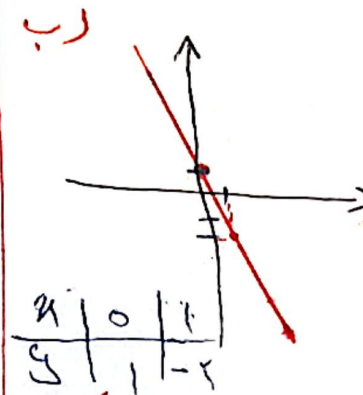
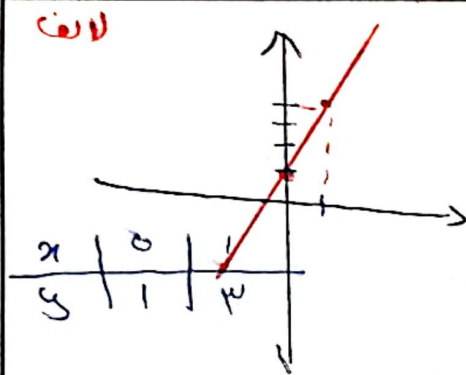


الف) $y = x \Rightarrow y = ax + b = y = x + 0 \Rightarrow a = 1 \quad b = 0$

$a + 2b = 1 + 2(0) = 1$

ب) $y = x^2 + ax + b \xrightarrow{1^2} 1 = 1 + a + b \Rightarrow -a - b = 0$

$\xrightarrow{-9} -9 = 9 - 9a - 9b \Rightarrow 9a + 9b = 18 \Rightarrow a + b = 2$



Public Limited Company, Commercial Registration Number: 442325, National ID: 10320894878

Tel: +98 85930

Fax: +98 85931250

Postal Code: 1964913153

No. 1, Bidar St., North Nelson Mandela Blvd., Modarres Highway, Tehran, Iran

ba24.ir

الف) $x^2 - 4x \neq 0 \rightarrow x(x-4) \neq 0 \rightarrow x \neq 4, 0 \rightarrow D_f = \mathbb{R} - \{0, 4\}$



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$x^2 - 7x + 12 \neq 0 \xrightarrow{\Delta} \sqrt{b^2 - 4ac} = \sqrt{49 - 48} < 0 \rightarrow \text{دو ریشه مجزا}$

$\rightarrow D_f = \mathbb{R}$

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ج) $x^2 + 2x + 1 \neq 0 \xrightarrow{\Delta} \sqrt{b^2 - 4ac} = \sqrt{4 - 4} < 0 \rightarrow \text{دو ریشه مجزا} \rightarrow D_f = \mathbb{R}$

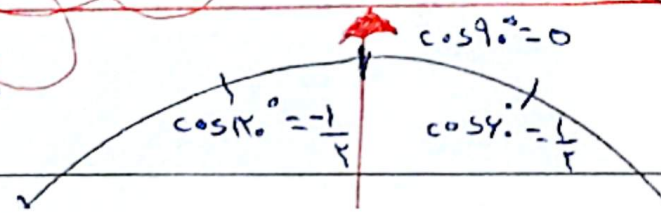
د) $x^4 - 4x^2 \neq 0 \rightarrow x^2(x^2 - 4) \neq 0 \rightarrow x^2(x-2)(x+2) \neq 0 \rightarrow x \neq 0, 2, -2 \rightarrow D_f = \mathbb{R} - \{0, 2, -2\}$

الف) $\begin{cases} 4 - x > 0 \rightarrow x < 4 \\ x - 2 > 0 \rightarrow x > 2 \end{cases} \Rightarrow D_f = [2, 4]$

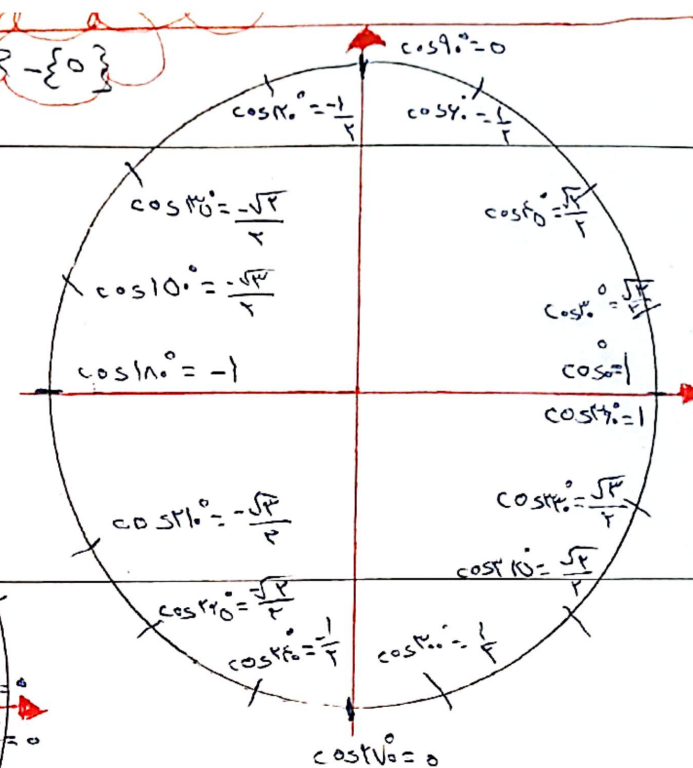
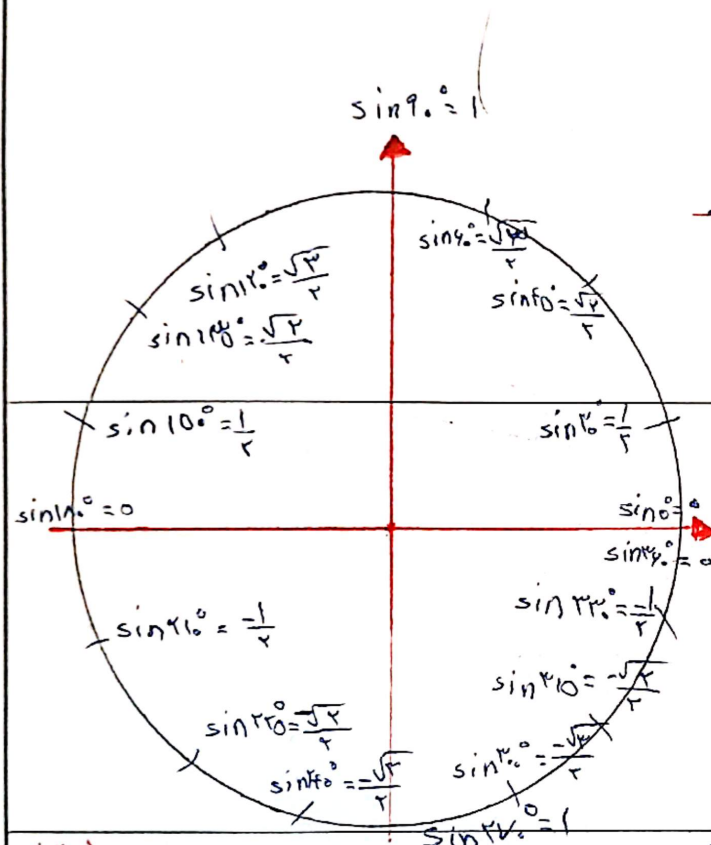
ب) $x^2 + 1 \neq 0 \rightarrow D_f = \mathbb{R}$
همواره مثبت

ج) $\begin{cases} x - 4 \neq 0 \rightarrow x \neq 4 \\ x - 2 \geq 0 \rightarrow x \geq 2 \end{cases} \rightarrow D_f = [2, +\infty) - \{4\}$

د) $|x| + x^2 \neq 0 \rightarrow x \neq 0 \rightarrow D_f = \mathbb{R} - \{0\}$



$x - y \neq 0 \rightarrow x \neq y \rightarrow D_f = \mathbb{R} - \{0\}$



الف) $\cos \frac{2\pi}{4} = \cos 180^\circ = -\frac{1}{2} \xrightarrow{\text{قرینه}} -(-\frac{1}{2}) = \frac{1}{2} \rightarrow \frac{\pi}{4}, \frac{0\pi}{4}$

ب) $\cos \frac{11\pi}{4} = \cos 330^\circ = \frac{\sqrt{3}}{2} \xrightarrow{\text{قرینه}} (\frac{\sqrt{3}}{2}) = -\frac{\sqrt{3}}{2} \rightarrow \frac{8\pi}{4}, \frac{0\pi}{4}$