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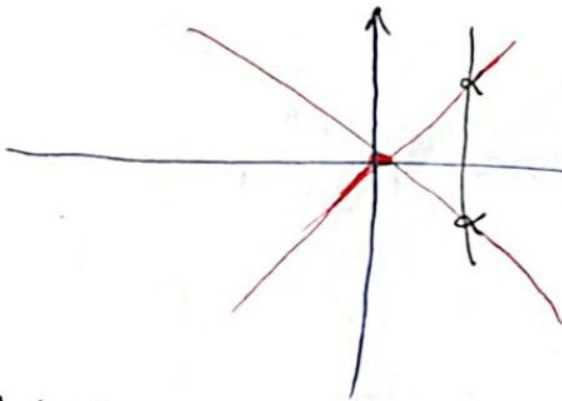
$$f = \{(1, 4a), (1, a^2 + 3), (2, 3a)\}$$

$$a^2 + 3 = 4a \Rightarrow a^2 - 4a + 3 = 0 \quad (a-1)(a-3) = 0 \Rightarrow$$

$$\begin{cases} a=3 \\ a=1 \end{cases}$$

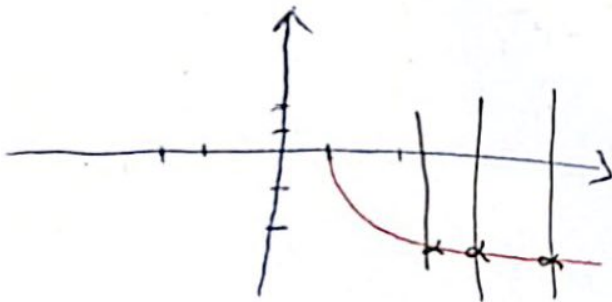
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الف) $|y| = |x| \Rightarrow y = x \quad \vee \quad y = -x$



تابع نیست.

ب) $|y| = -\sqrt{x-1}$



تابع هست.

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الف) $|y-1| = \sqrt{x-2}$

$x=3 \Rightarrow |y-1| = 1 \Rightarrow y = \begin{matrix} +2 \\ 0 \end{matrix} = \text{تابع نیست}$

ب) $y^4 - y = \frac{x^2}{2}$

$x=0 \Rightarrow y^4 - y = 0 \Rightarrow y(y^3 - 1) = 0 \Rightarrow y = \begin{cases} y=1 \\ y=-1 \\ y=0 \end{cases} = \text{تابع نیست}$

$$ج) \sin^2 x + \cos^2 \frac{y}{r} = 1$$

$$x = 0 \Rightarrow \cos^2 \frac{y}{r} = 1$$

$$\cos^2 \frac{y}{r} = 1 \Rightarrow \begin{cases} y = 2\pi \\ y = 0 \end{cases} \Rightarrow \text{تقاطع}$$

$$د) 2xy = x$$

$$x = 0$$

$$2x \times y = 0 \Rightarrow y = 0 \quad \text{تمام اعداد صحیح می تواند باشد}$$

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$$الف) x^2 + |y-1| = 4x$$

$$x = 1 \Rightarrow |y-1| = 3 \Rightarrow \begin{cases} y = 4 \\ y = -2 \end{cases}$$

$$ب) y^2 + 3x = 0$$

$$x = -1 \Rightarrow y^2 = 3 \Rightarrow y = \pm \sqrt{3}$$

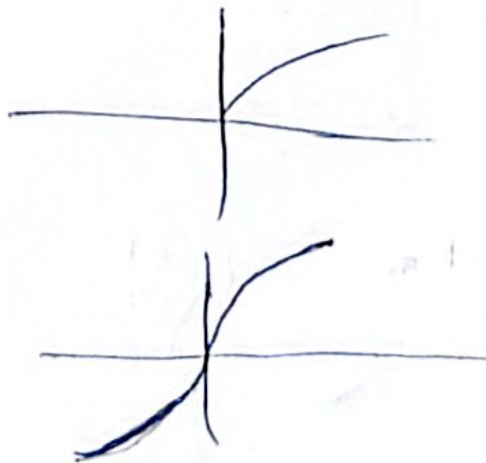
$$x = 1 \Rightarrow y^2 = -3 \Rightarrow y = \pm \sqrt{-3}$$

$$x = 0 \Rightarrow y^2 = 0 \Rightarrow y = 0$$

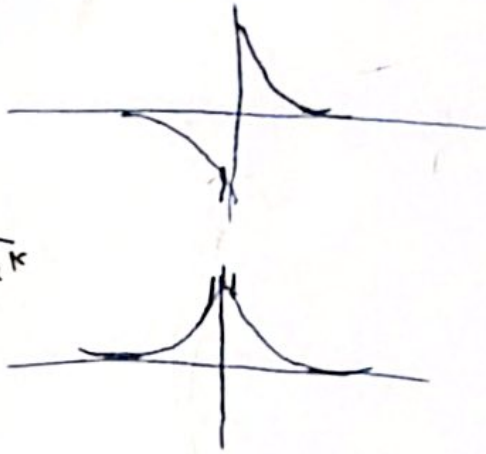
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$$الف) y = \sqrt{x}$$

$$ب) y = \sqrt{x}$$



ج. $y = \frac{1}{x^2}$

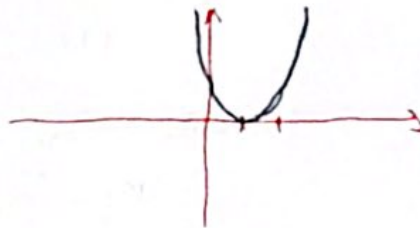


د. $y = \frac{1}{x^2}$



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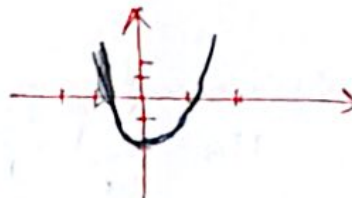
الف) $y = (x-1)^2$



ب. $y = (x+2)^2$



ج. $y = x^2 - 2$

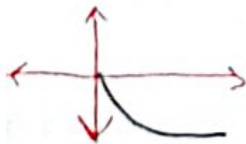


د. $y = x^2 + 1$



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الف) $y = -\sqrt{x}$



ب. $y = \sqrt{-x}$



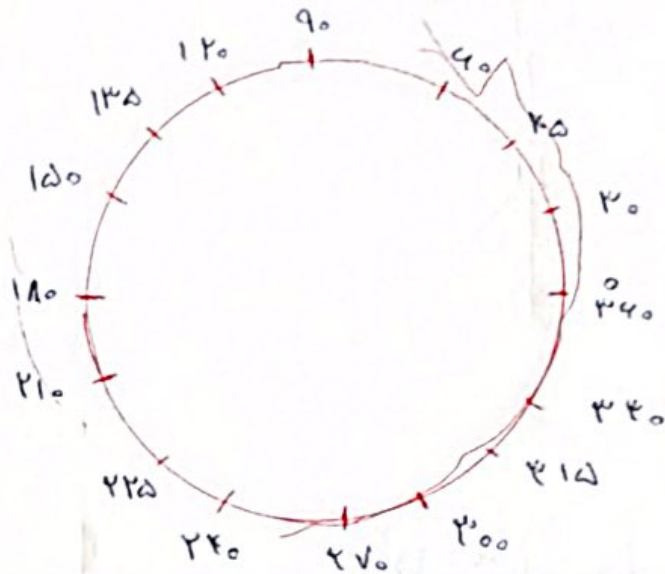
ج. $y = -\sqrt{-x}$



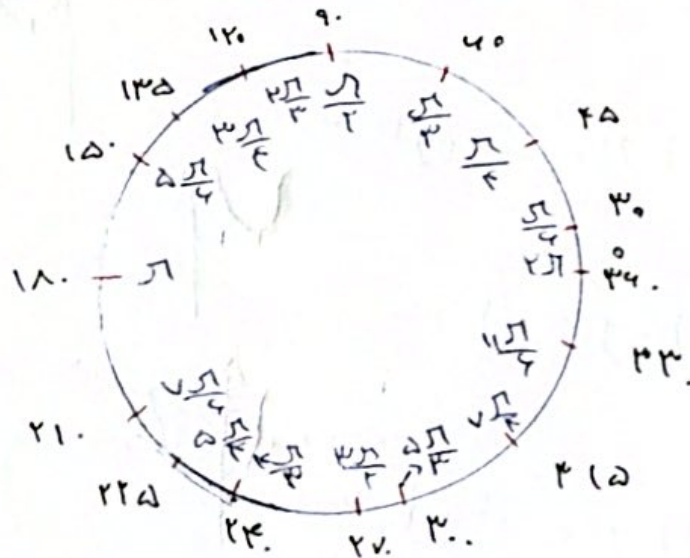
د. $y = -\sqrt{x} + 2$



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الف) $\cos 120^\circ \rightarrow -\frac{1}{2}$

ب) $\sin 150^\circ \rightarrow -\frac{1}{2}$

ج) $\cos \frac{5\pi}{3} \rightarrow \frac{1}{2}$

د) $\sin \frac{11\pi}{6} \rightarrow -\frac{1}{2}$