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

$$\Rightarrow fa = a^2 + 2 \Rightarrow a^2 - fa + 2 = 0 \Rightarrow (a-1)(a-2) = 0 \Rightarrow a = 1, 2$$

$$a=1 \rightarrow f = \{(1, 4), (2, 2)\}$$

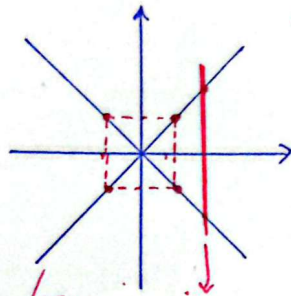
$$a=2 \rightarrow f = \{(1, 12), (2, 9)\}$$

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$$|y| = |x|$$

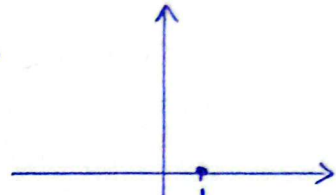
$$x=1 \rightarrow y = \pm 1$$

$$x=1 \rightarrow y = \pm 1$$



خط در نمودار واقع شده پس تابع نیست.

$$|y| + \sqrt{x-1} = 0$$



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خط در نمودار واقع نمی باشد پس تابع است.

$$الف) |y-1| = \sqrt{x-2}$$

$$x=2 \rightarrow |y-1|=1 \Rightarrow y-1 = \pm 1 \Rightarrow y = 0, 2$$

$$ب) y^2 - y = \frac{x}{2}$$

$$x=0 \rightarrow y(y+1)(y+1)(y-1) = 0 \Rightarrow y = 0, -1, 1$$

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

$$x=0 \rightarrow (\frac{1}{2})^2 + \cos^2 \frac{y}{2} = 1$$

$$\cos^2 \frac{y}{2} = \frac{3}{4} \Rightarrow$$

$$\cos \frac{y}{2} = \pm \frac{\sqrt{3}}{2}$$

$$y/2 = 0, 2\pi, 1\pi, 3\pi$$

$$\Rightarrow y = 0, 4\pi, 2\pi, 6\pi$$

$$\Rightarrow y = 0, 2\pi$$

$$د) 2xy = x$$

$$x=0 \Rightarrow y=0$$

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این نهایت منتهی در (مسم است).

$$الف) x + |y-1| = 4x$$

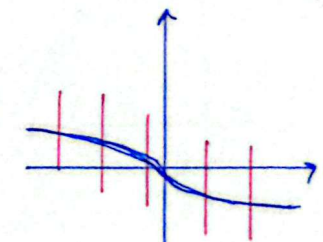
$$\Rightarrow |y-1| = 4x - x$$

$$x=2 \rightarrow |y-1|=2 \Rightarrow y-1 = \pm 2 \Rightarrow y = 3, -1$$

$$ب) y^2 + 2x = 0$$

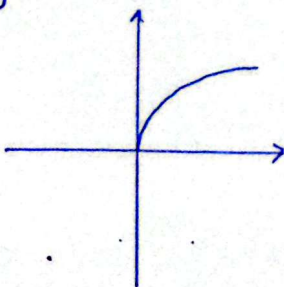
$$\Rightarrow y^2 = -2x \Rightarrow y = \pm \sqrt{-2x}$$

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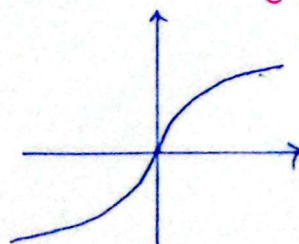


این نمودار هیچ خطی در واقع نیست.

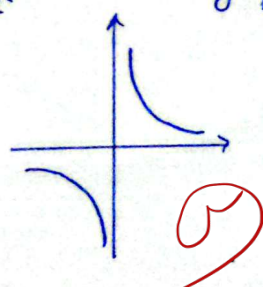
$$الف) y = \sqrt{x}$$



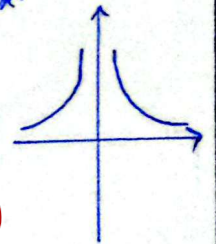
$$ب) y = \sqrt[3]{x}$$



$$ج) y = \frac{1}{x^2}$$

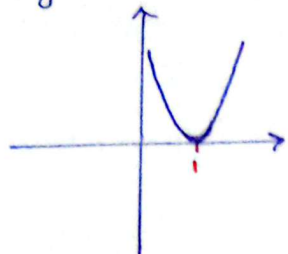


$$د) y = \frac{1}{x^2}$$

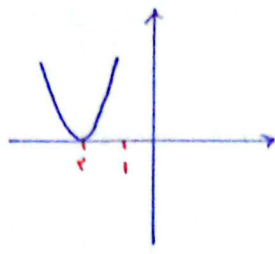


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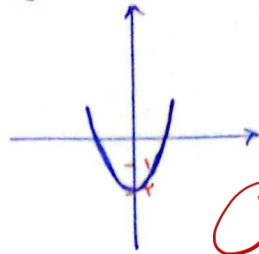
الف) $y = (x-1)^2$



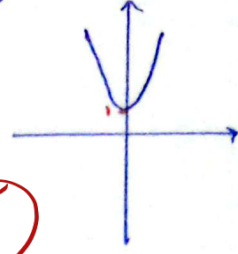
ب) $y = (x+2)^2$



ج) $y = x^2 - 2$

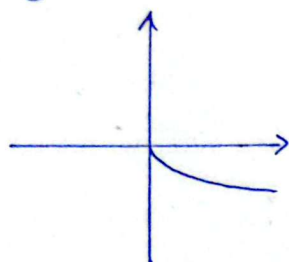


د) $y = x^2 + 1$

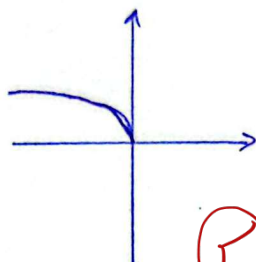


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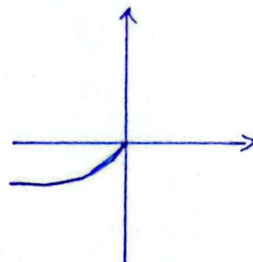
الف) $y = -\sqrt{x}$



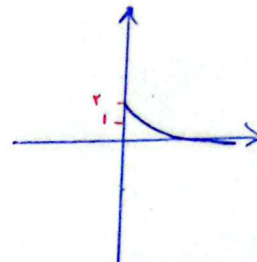
ب) $y = \sqrt{-x}$



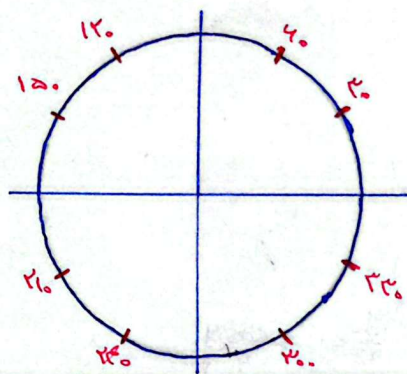
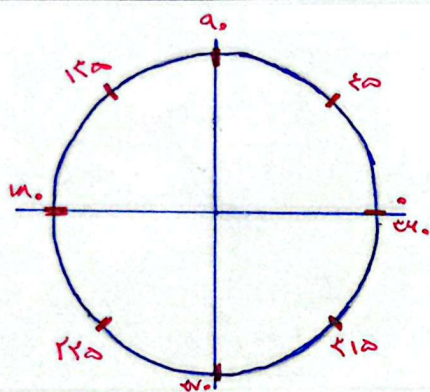
ج) $y = -\sqrt{-x}$



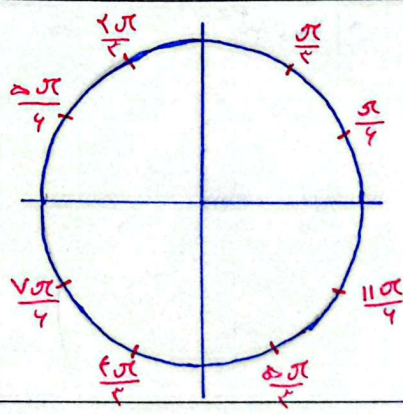
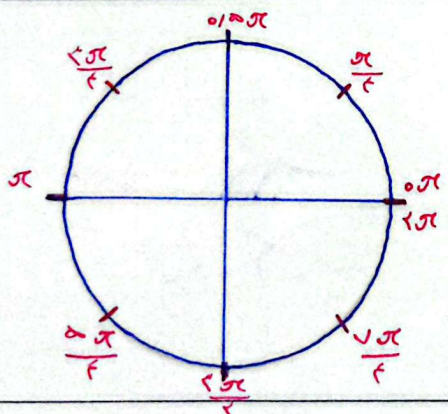
د) $y = \sqrt{x} + 2$



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الف) $\cos 120^\circ = -\frac{1}{2}$

ب) $\sin 150^\circ = \frac{1}{2}$

ج) $\cos \frac{5\pi}{6} = -\frac{1}{2}$

د) $\sin \frac{4\pi}{3} = -\frac{1}{2}$

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