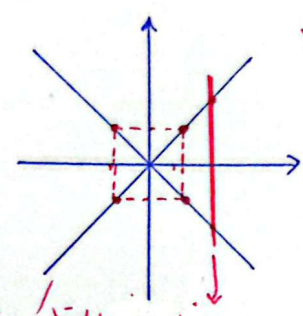
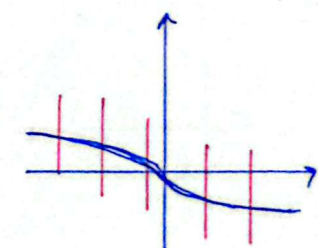
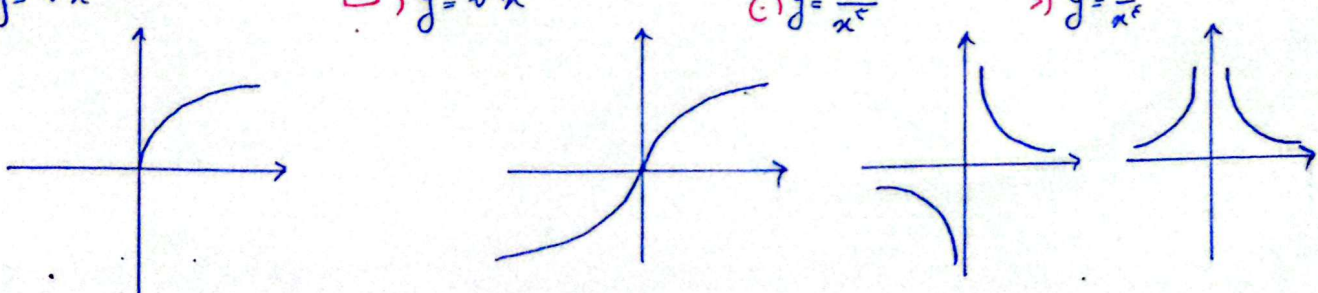
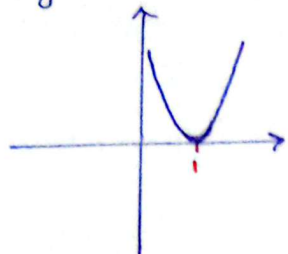
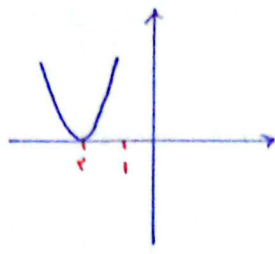


$f = \{(1, 4a), (1, a^2 + 2), (2, 2a)\}$ $\Rightarrow f(a) = a^2 + 2 \Rightarrow a^2 - 2a + 2 = 0 \Rightarrow (a-1)(a-2) = 0 \Rightarrow a = 1, 2$ $a = 1 \rightarrow f = \{(1, 4), (2, 2)\}$ $a = 2 \rightarrow f = \{(1, 12), (2, 9)\}$	۱
$ y = x $ $x=1 \rightarrow y = \pm 1$ $x=1 \rightarrow y = \pm 1$  خط در نمودار را قطع کرده پس تابع نیست.	۲
$ y-1 = \sqrt{x-2}$ $x=2 \rightarrow y-1 = 1 \Rightarrow y-1 = \pm 1 \Rightarrow y = 0, 2 \Rightarrow x$ $\sin^2 x + \cos^2 \frac{y}{2} = 1$ $x=2 \rightarrow (\frac{1}{2})^2 + \cos^2 \frac{y}{2} = 1$ $\cos^2 \frac{y}{2} = \frac{3}{4} \Rightarrow \cos \frac{y}{2} = \pm \frac{\sqrt{3}}{2}$ $\frac{y}{2} = 20^\circ, 40^\circ, 140^\circ, 160^\circ$ $\Rightarrow y = 40^\circ, 80^\circ, 280^\circ, 320^\circ$ $\Rightarrow y = 40^\circ, 320^\circ \Rightarrow x$	۳
$x^2 + y-1 = 4x$ $\Rightarrow y-1 = 4x - x^2$ $x=2 \rightarrow y-1 = 2 \Rightarrow y-1 = \pm 2 \Rightarrow y = 3, -1 \Rightarrow x$ $y^2 + 2x = 0$ $\Rightarrow y^2 = -2x \Rightarrow y = \pm \sqrt{-2x}$  می توانیم خطی در برش دهیم پس تابع نیست.	۴
$y = \sqrt{x}$ $y = \sqrt[3]{x}$ $y = \frac{1}{x^2}$ $y = \frac{1}{x^4}$ 	۵

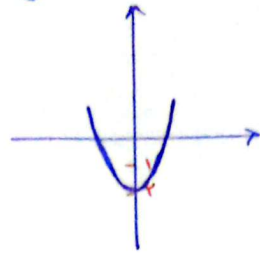
الف) $y = (x-1)^2$



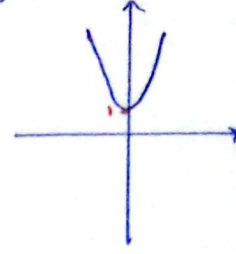
ب) $y = (x+2)^2$



ج) $y = x^2 - 2$

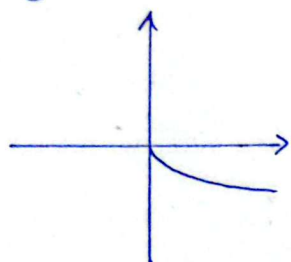


د) $y = x^2 + 1$

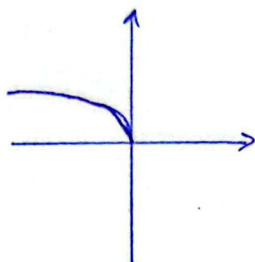


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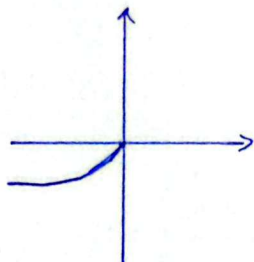
الف) $y = -\sqrt{x}$



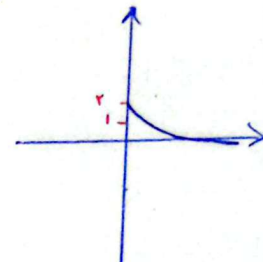
ب) $y = \sqrt{-x}$



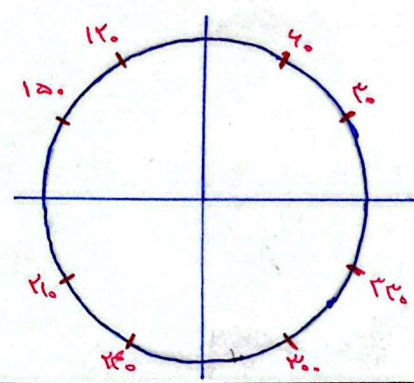
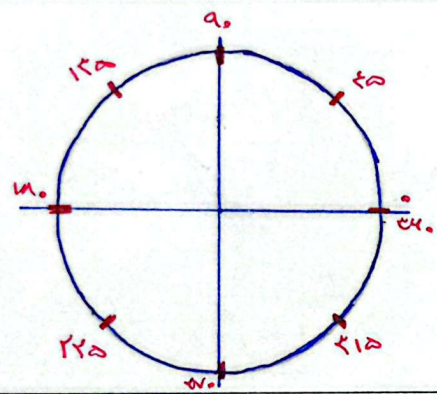
ج) $y = -\sqrt{-x}$



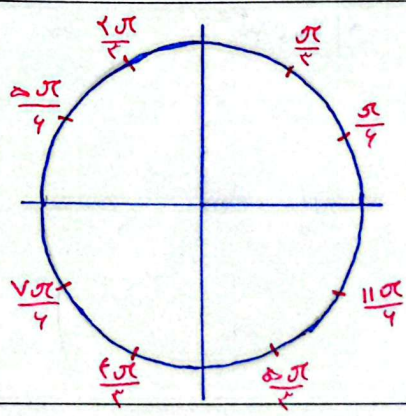
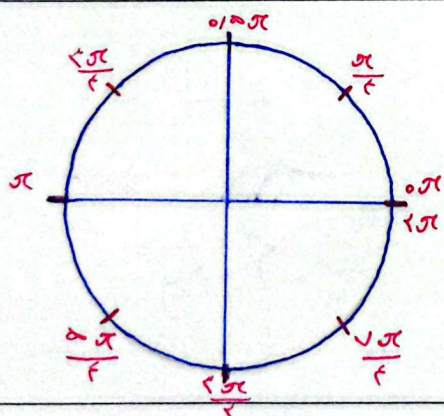
د) $y = \sqrt{x} + 2$



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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) $\sin \frac{4\pi}{6} = -\frac{1}{2}$

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