

الف) $y^3 - x = 2x^2$

$y^3 = 2x^2 + x$
 $y = \sqrt[3]{x(2x+1)}$
 چون به ازای هر x یک y مشخص داریم، تابع است.

ب) $|y| + x^2 = x + 3$

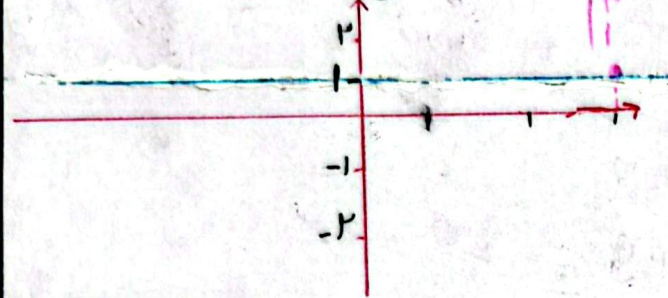
$|y| = -x^2 + x + 3$
 $y = -x^2 + x + 3$
 $-y = x^2 - x - 3$
 تابع نیست

ج) $\sqrt{x-4} + |y-2| = 0$

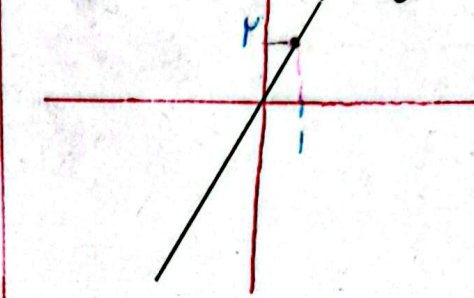
در این معادله فقط $x=4, y=2$ پس تابع هست

$x=1 \Rightarrow y=\{2, 3\}$
 تابع نیست
 د) $x = \cos y$

الف) $y = k$ در اینجا $y = 1$



ب) $y = 2x + b$ در اینجا $y = 2x + 5$



الف) $y = ax + b \mid y = x$

$a=1, b=0$

$a + 2b = 1$

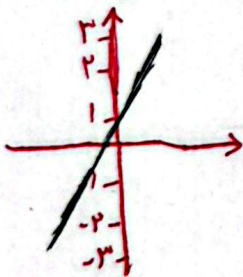
ب) $y = x^2 + bx + c$ و $\min = 1$

$\min = -\frac{b}{2a} \Rightarrow -\frac{b}{2} = 1 \Rightarrow b = -2$

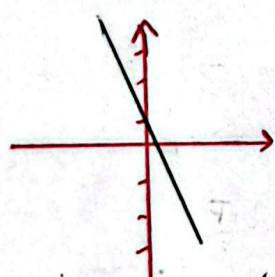
$y = 1 + (-2) + c \Rightarrow b + 2c = 6$

$y = 1 \Rightarrow c = 5$

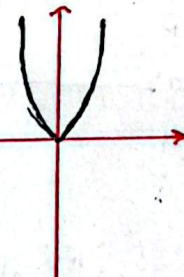
الف) $y = 2x + 1$



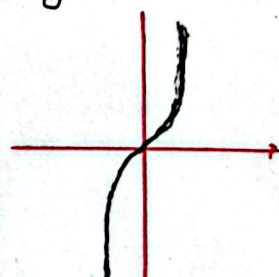
ب) $y = -3x + 1$



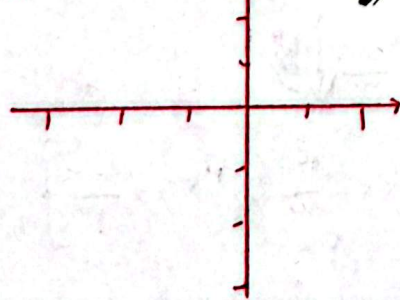
ج) $y = x^2$



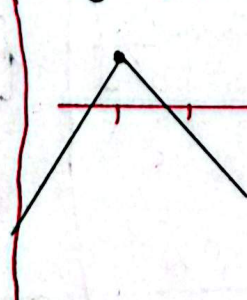
د) $y = x^3$

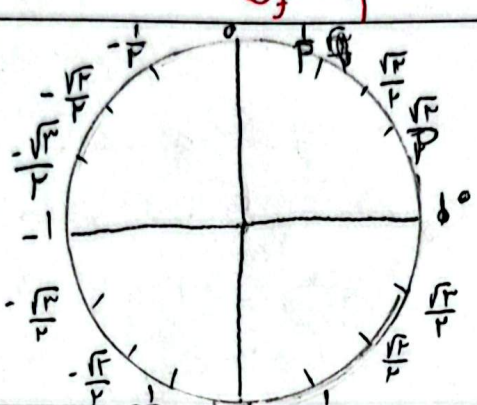
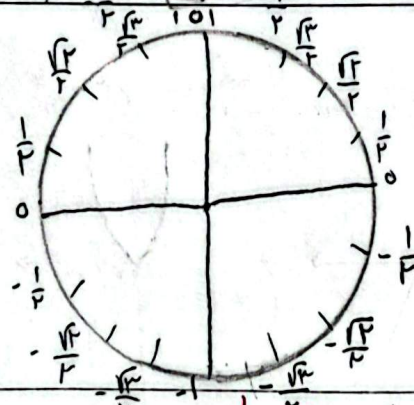


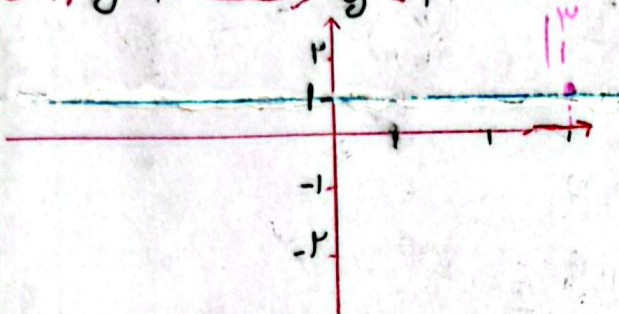
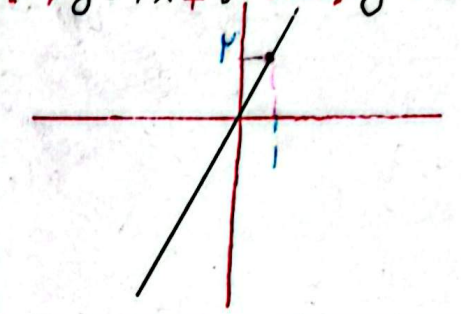
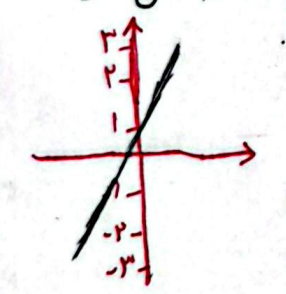
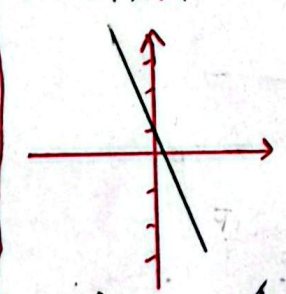
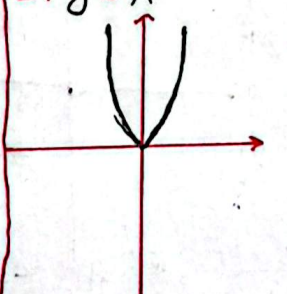
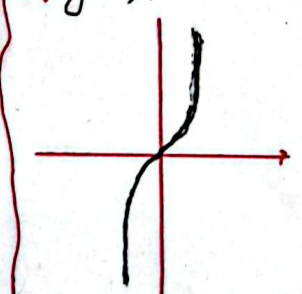
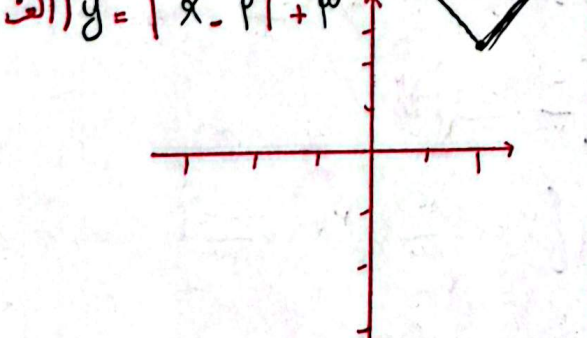
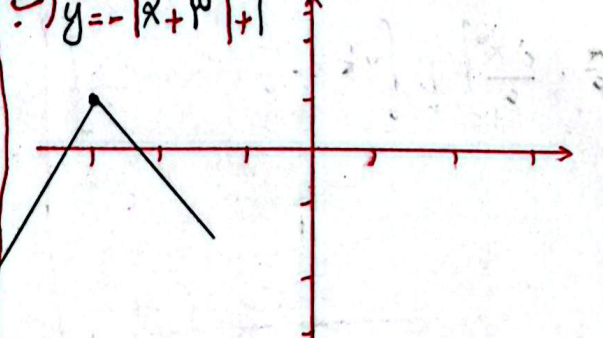
الف) $y = |x - 2| + 3$



ب) $y = -|x + 3| + 1$



$الف) y = \frac{x+4}{x^2-4x}$ $\frac{x+4}{x(x-4)}$ $D_f = \mathbb{R} - \{0, 4\}$	$ب) y = \frac{x+4}{x^2-4x+4}$ $\frac{x+4}{(x-2)^2}$ $D_f = \mathbb{R} - \{2\}$	$ج) y = \frac{x+4}{x^2+x+4}$ $\Delta = 1-16 = -15 < 0$ $D_f = \mathbb{R}$	$د) y = \frac{x+1}{-4x^2+x^4}$ $x^2((x-2)(x+2))$ $D_f = \mathbb{R} - \{0, 2, -2\}$	6
$الف) \sqrt{4-x} + \sqrt{x-2}$ $D_f = [2, 4]$	$ب) y = \frac{\sqrt{x-2}}{x-4}$ $D_f = [2, +\infty) - 4$			7
$الف) y = \frac{3x+1}{x^2+1}$ $D_f = \mathbb{R}$	$ب) y = \frac{2x+3}{ x +x^2}$ $D_f = \mathbb{R}$			
				8
				9
$الف) \cos \frac{\pi}{3} = \frac{1}{2} \text{ قرینه } = -\frac{1}{2}$ $\left\{ \frac{\pi}{6}, \frac{5\pi}{6} \right\} \text{ یا } \left\{ 2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6} \right\}$	$ب) \cos \frac{11\pi}{6} = \frac{\sqrt{3}}{2} \text{ قرینه } = -\frac{\sqrt{3}}{2}$ $\left\{ \frac{4\pi}{3}, \frac{2\pi}{3} \right\} \text{ یا } \left\{ 2k\pi + \frac{4\pi}{3}, 2k\pi + \frac{2\pi}{3} \right\}$			10

الف) $y^3 - x = 2x^2$ $y^3 = 2x^2 + x$ $y = \sqrt[3]{x(2x+1)}$ چون به ازای هر x یک y مشخص داریم، تابع است.	ب) $y + x^2 = x + 3$ $y = -x^2 + x + 3$ $y = -x^2 + x + 3$ $-y = x^2 - x - 3$ تابع نیست	ج) $\sqrt{x-4} + y-2 = 0$ $x=4, y=2$ در این معادله فقط پس تابع هست $x=1 \Rightarrow y=\{2, 3\}$ تابع نیست د) $x = \cos y$	۱	
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