

الف $y^3 - x = 2x^2 \rightarrow \begin{cases} y^3 = 2x^2 + x \\ y^2 = 2x + x \\ y = y^2 \end{cases}$ تابع است

ب $|y| + x^2 = x + 3 \xrightarrow{x=1} |y| + 1 = 1 + 3 \rightarrow |y| = 3 \rightarrow y = \pm 3$ تابع نیست

ج $\sqrt{x-4} + |y-2| = 0 \rightarrow \sqrt{x-4} = -|y-2|$
 (منفی) در کتاب گفته شده
 در بعضی کتاب ها صحت
 چون نمودار را پیدا و بر تقاطع نمی کند

د $x = \cos y$

اگر $x = 0$ بدست می آید برای مقادیر $\frac{\pi}{2}$ و $\frac{3\pi}{2}$ بدست می آید

تابع نیست

الف $y = \frac{x+4}{x^2-4x} \rightarrow x^2 - 4x \neq 0 \rightarrow x^2 \neq 4x \rightarrow x \neq 4 \rightarrow Df = R - \{4\}$

ب $y = \frac{x+4}{x^2-4x}$

$Df = R$

$x^2 - 4x + 4 \rightarrow \Delta = b^2 - 4ac \rightarrow 4 - 4(1)(4) = -12$ (منفی) پس جواب ندارد

ج $y = \frac{x+4}{x^2-4x}$

$Df = R$

$x^2 + x + 4 \rightarrow \Delta = b^2 - 4ac \rightarrow 1 - 4 = -3$ (منفی)

د $y = \frac{x+4}{x^2-4x}$

$x^2 - 4x$

$x^2(x^2-4) \neq 0 \rightarrow x \neq 0 \rightarrow x \neq \pm 2 \rightarrow Df = R - \{0, -2, 2\}$

الف $y = \sqrt{4-x} + \sqrt{x-2}$

$\begin{cases} 4-x \geq 0 \rightarrow x \leq 4 \\ x-2 \geq 0 \rightarrow x \geq 2 \end{cases} \rightarrow 2 \leq x \leq 4 \rightarrow Df = [2, 4]$

ب $y = \frac{x^2+1}{x^2+1}$

$x^2+1 \neq 0 \rightarrow x^2 \neq -1 \rightarrow Df = R$

ج $y = \frac{\sqrt{x-2}}{x-4}$

$x-2 \geq 0 \rightarrow x \geq 2$

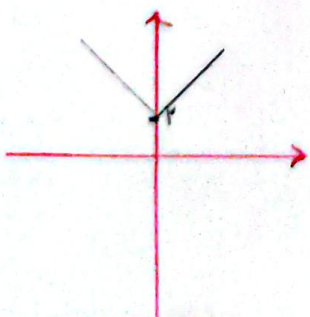
$x-4 \neq 0 \rightarrow x \neq 4$

$Df = [2, +\infty) - \{4\}$

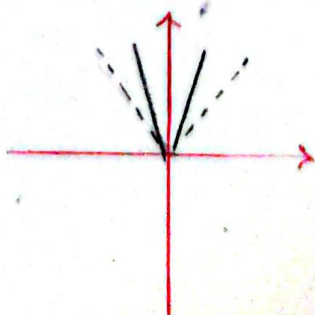
د $y = \frac{2x+3}{|x|+x^2}$

$|x| + x^2 \neq 0 \rightarrow |x| \neq -x^2$
 (منفی)
 $\checkmark Df = R$

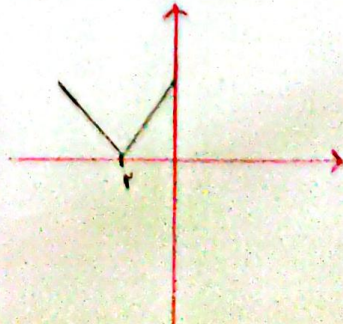
الف $y = |x| + 2$



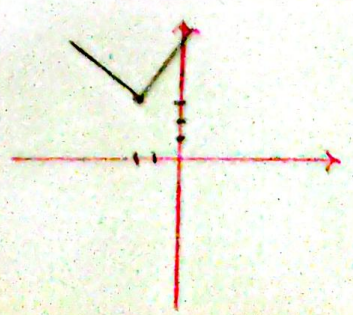
ب $y = 2|x|$

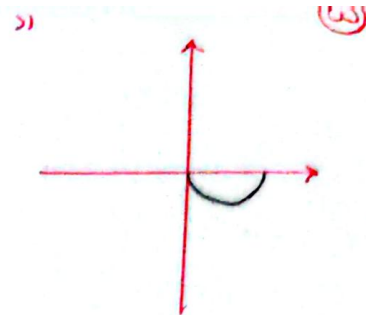


ج $y = |x+2|$



د $y = |x+2| + 3$





A number line with three points labeled x_1 , x_2 , and x_3 from left to right. The intervals are marked with signs: '+' for $x < x_1$, '-' for $x_1 < x_2$, '-' for $x_2 < x_3$, and '+' for $x > x_3$.

$$\begin{array}{r} \overset{\gamma}{\phi} + \overset{\pi}{\sqrt{c}} - \overset{\pi}{\phi} + \\ \hline \end{array}$$

$$\begin{array}{ccccccc} & & x^2 & & x & & \\ & & \downarrow & & \downarrow & & \\ + & - & + & - & + & - & + \end{array}$$

$$\begin{array}{r} x^r - rx + r \quad | \quad x-1 \\ -x^r + x^r \\ \hline rx - rx + r \\ -rx + r \\ \hline r \end{array} \quad \begin{array}{l} (n+1) \\ (n-1) \end{array}$$

$$\begin{array}{ccccccc} & + & & & & & \\ & 1 & & 2 & & 3 & \\ \hline + & 0 & | & + & 0 & | & - & 0 & | & + \end{array}$$

$$\begin{array}{ccccccc} & -1 & & 0 & & 1 & \\ \hline + & | & - & | & - & | & + \end{array}$$

$\begin{array}{c} - \\ + \end{array}$

$$\begin{array}{c} \xrightarrow{-\infty} \quad 1 \quad \quad \quad \star \quad \rightarrow (-\infty, -K) \cup (K, +\infty) \\ +\phi \quad -\phi \quad +\phi \quad -\phi \end{array}$$