

سوال ۱: $y^2 = y^2 \rightarrow y_1 = y_2$
تابع هفت

الف) $y^3 - x = 2x^2$
 ~~$y^2 - x = x \Rightarrow y^2 = 2x$~~

ب) $y^2 = x + 2x^2$ جواب، $y^2 - x = 2x^2 \Rightarrow 1 - x = 2x^2$
اگر $y = 1$ یا -1 باشد جواب ندارد و جواب نیست. ازای آن نداریم.

ج) $|y| + x^2 = x + 2$
بنا بر فرض $y = 1$

د) $\sqrt{x-4} + |y-2| = 0$
 $\rightarrow x-4=0$ و $y-2=0 \Rightarrow x=4$ و $y=2$

ه) $x = \cos y$
تابع هشت
بنا بر فرض $x=0$ $y = \pi, 2\pi$

سوال ۲: الف) $y = \frac{x+5}{x^2-4x}$
ب) $y = \frac{x+5}{x^2-7x+14}$ $x^2-7x+14 \neq 0$
 $\rightarrow f(x) = \mathbb{R}$ بنا بر این $\rightarrow$ (هیچ صورتی به معنی نبود)

ج) $y = \frac{x+5}{x^2+x+5}$ $\rightarrow f(x) = \mathbb{R}$ (هیچ صورتی به معنی نبود)

د) $y = \frac{x+5}{x^2-4x}$ $f(x) = \mathbb{R} - \{0, 2\}$

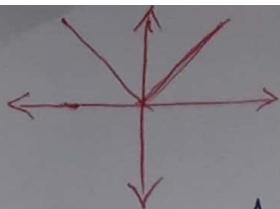
سوال ۳: الف) $y = \sqrt{4-x} + \sqrt{x-2}$ $f(x) = (-\infty, 2] \cup [4, +\infty)$

ب) $y = \frac{2x+1}{x^2+1}$ $\rightarrow f(x) = \mathbb{R}$ (هیچ صورتی معر)

ج) $y = \frac{\sqrt{x-2}}{x-4}$ $\rightarrow f(x) = \mathbb{R} - [4]$

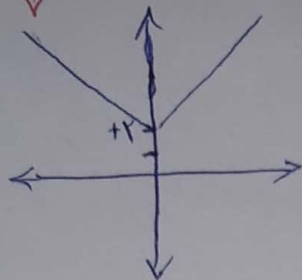
د) $y = \frac{2x+5}{|x|+x^2}$ $\rightarrow f(x) = \mathbb{R} - [0]$

$$y = |x|$$

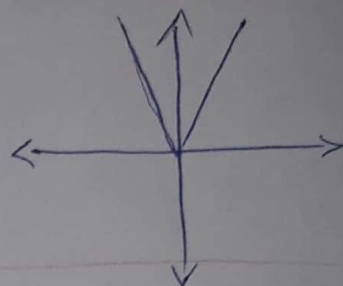


سوال ۴ :

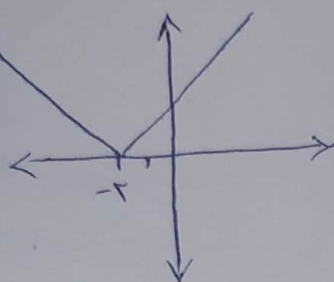
الف) $y = |x| + 2$



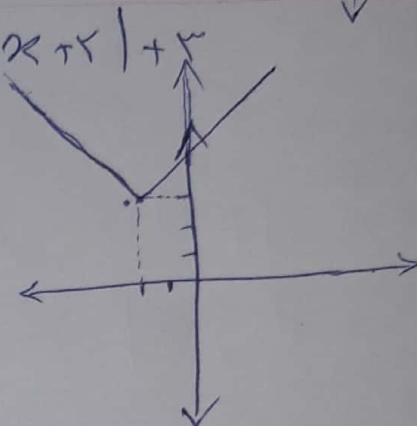
ب) $y = 2|x|$



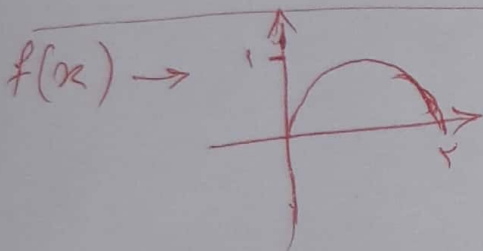
ج) $y = |x+2|$



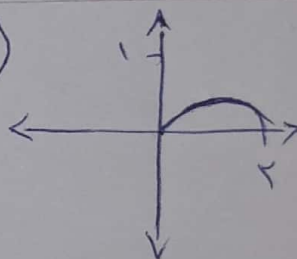
د) $y = |x+2| + 2$



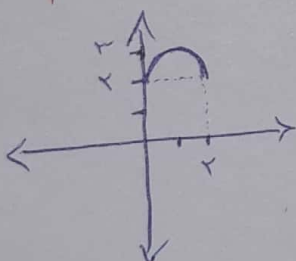
سوال ۵ :



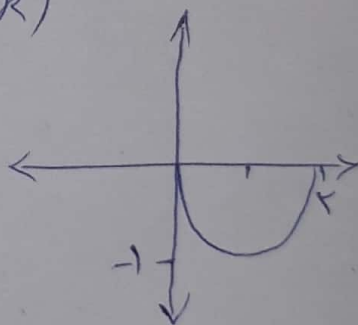
ب) $2f(x)$



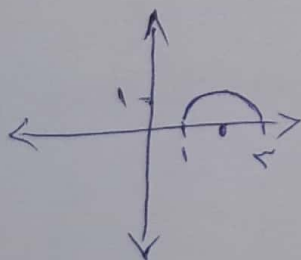
الف) $f(x) + 2$



د) $-f(x)$

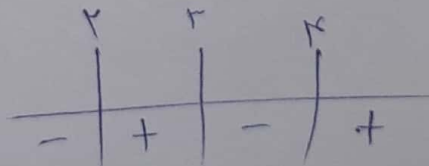


ج) $f(x-1)$



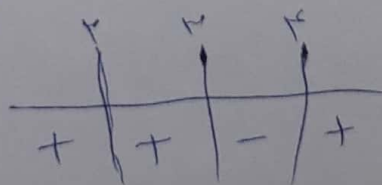
سوال ۶ ←

الف) $y = (x-2)(x-3)(x-4)$



$x = \{2, 3, 4\}$

ب) $y = (x-2)(x-3)^2(x-4)$



$x = \{2, 3, 4\}$

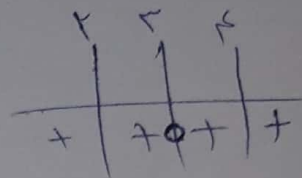
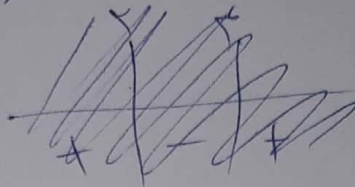
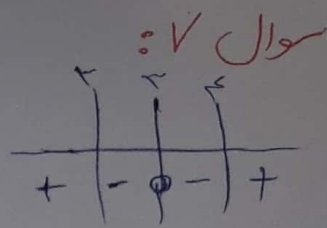
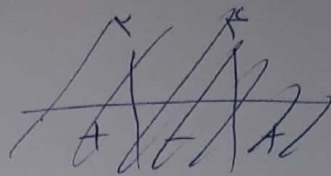
الف) ~~$y = \frac{x^3 - 5x^2 + 4x}{x^2 - 2x - 3}$~~

الف) $y = \frac{(x-2)(x-4)}{x-3}$

~~$x = \{2, 3, 4\}$~~

ب) $y = \frac{(x-2)(x-4)}{(x-3)^2}$

~~$x = \{2, 3, 4\}$~~

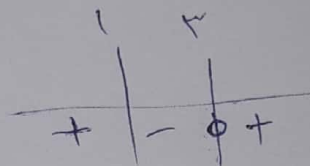


سوال ٨:

~~$y = \frac{x^3 - 2x^2 + 2x}{x^2 - 2x + 1}$~~

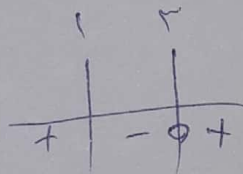
الف) $y = \frac{x^3 - 2x^2 + 2x}{x-1}$

$x = \{1, 2\}$



ب) $y = \frac{x^3 - 2x^2 + 2x}{x^2 - 2x + 1}$

$x = \{2, 1\}$



الف) $y = \frac{x^3 - x^2}{x^2 + x + 2}$

$x = \{0, 1, -1\}$



سوال ٩:

ب) $y = \frac{x^3 + 5x^2 + 5x}{x^2 + 5x + 2}$

معتدلة

$f(x) = \mathbb{R}$

الف) $y = \sqrt{\frac{x^2 - 1}{x^2 - x}}$

$f(x) = (-\infty, 1]$

ب) $y = \sqrt{\frac{x^2 - 14}{x^2 - 2x + 4}}$

$f(x) = \mathbb{R} - [1]$

سوال ١٠: