

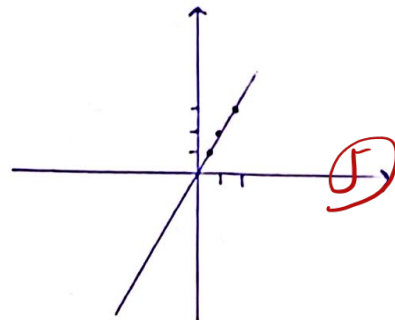
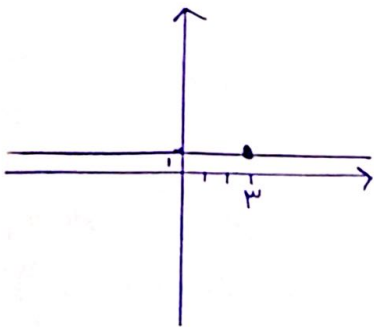
نام و نام خانوادگی: شماره: کلاس: دبیر:
 پاسخنامه تشریحی تکلیف شماره ۳۰

الف) $y^3 - x = 2x^2 \rightarrow y^3 = x + 2x^2 \rightarrow x_1 = y_1^3 - 2x_1^2, x_2 = y_2^3 - 2x_2^2 \xrightarrow{if} x_1 = x_2 \rightarrow y_1^3 - 2x_1^2 = y_2^3 - 2x_2^2$
 $\xrightarrow{if} y_1^3 - y_2^3 = 2x_1^2 - 2x_2^2 \xrightarrow{if} y_1^3 - y_2^3 = 2(x_1^2 - x_2^2) \xrightarrow{if} y_1^3 - y_2^3 = 2(y_1^3 - y_2^3) \xrightarrow{if} y_1^3 - y_2^3 = 2y_1^3 - 2y_2^3 \xrightarrow{if} -y_1^3 + y_2^3 = y_1^3 - y_2^3 \xrightarrow{if} -y_1^3 - y_1^3 + y_2^3 + y_2^3 = 0 \xrightarrow{if} -2y_1^3 + 2y_2^3 = 0 \xrightarrow{if} -2(y_1^3 - y_2^3) = 0 \xrightarrow{if} -2(y_1 - y_2)(y_1^2 + y_1y_2 + y_2^2) = 0$
 $\xrightarrow{if} y_1 = y_2 \leftarrow \text{تابع است}$

ب) $|y| + x^2 = x + 3 \rightarrow x = 0 \rightarrow |y| + 0 = 0 + 3 \rightarrow |y| = 3 \rightarrow y = \pm 3$ تابع نیست

ج) $\sqrt{x-4} + |y-2| = 0 \rightarrow x=4, y=2 \xrightarrow{if} x+y=0 \xrightarrow{if} x=-y$
 اینجا عدد منفی وجود ندارد
 تابع است

د) $x = \cos y \rightarrow x = 0 \rightarrow y = \frac{\pi}{2}, \frac{3\pi}{2}, \dots$ تابع نیست

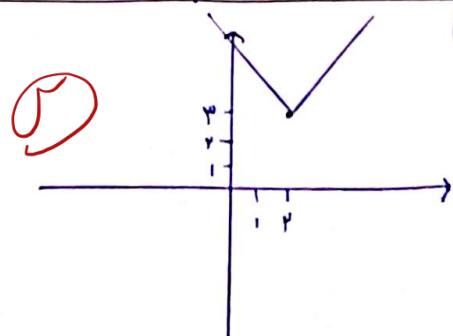
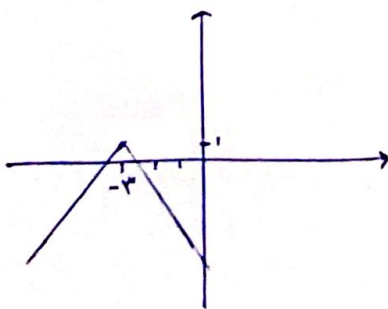
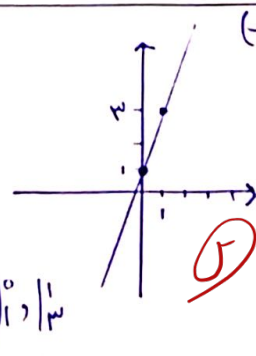
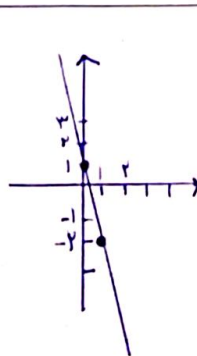
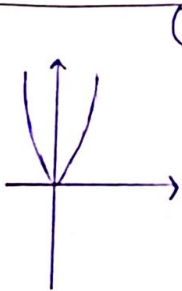
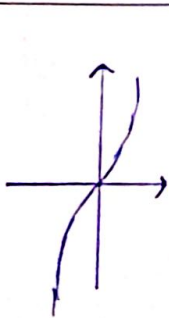


الف) $a=1, b=0 \rightarrow 1+(x \times 0)=1$

ب) $\frac{-a}{2} = 2 \rightarrow a = -4$

$y = x^2 + ax + b \rightarrow 2^2 + (-4 \times 2) + b = 1 \rightarrow b = 5$

$\rightarrow -4 + (2 \times 0) = 2$



الف) $y = \frac{x+4}{x^2-4x} \rightarrow x^2-4x \neq 0 \rightarrow x(x-4)=0 \rightarrow x=4, 0 \rightarrow D_f = \mathbb{R} - \{0, 4\}$

ب) $y = \frac{x+4}{x^2-7x+12} \rightarrow \Delta = \sqrt{(-7)^2 - (4 \times 12)} = \sqrt{49-48} = 1 \rightarrow$ زیر رادیکال منفی می شود پس خارج
 ایشم حقیقی ندارد و هرگز صفر نمی شود
 $D_f = \mathbb{R}$

ج) $y = \frac{x+4}{x^2+x+4} \rightarrow \Delta = \sqrt{1^2 - (4 \times 4)} = \sqrt{1-16} = \sqrt{-15} \rightarrow$ زیر رادیکال منفی می شود پس خارج
 ایشم حقیقی ندارد و هرگز صفر نمی شود
 $D_f = \mathbb{R}$

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

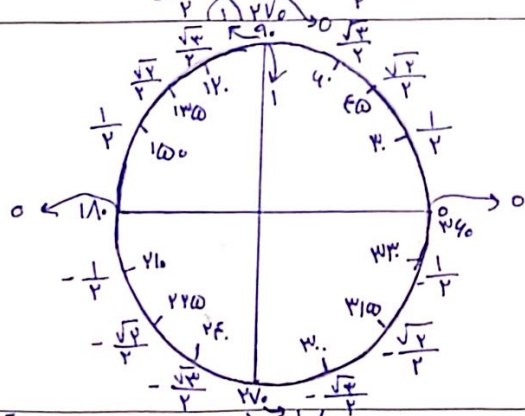
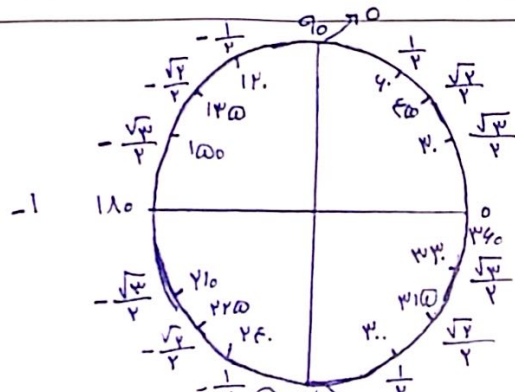
الف) $y = \sqrt{4-x} + \sqrt{x-2} \rightarrow 4-x \geq 0, x-2 \geq 0 \rightarrow 4 \geq x, x \geq 2 \rightarrow D_f = [2, 4]$

ب) $y = \frac{x+1}{x^2+1} \rightarrow x^2+1 \neq 0 \rightarrow x^2 \neq -1 \rightarrow D_f = \mathbb{R}$ x می تواند زوج و فرد منفی نباشد

ج) $y = \frac{\sqrt{x-2}}{x-4} \rightarrow x-2 \geq 0, x-4 \neq 0 \rightarrow x \geq 2, x \neq 4 \rightarrow D_f = [2, +\infty) - \{4\}$

د) $y = \frac{x^2+3}{|x|+x^2} \rightarrow |x|+x^2 \neq 0 \rightarrow |x| \neq -x^2 \rightarrow D_f = \mathbb{R}$ قدر مطلق x هرگز منفی نمی شود

تصرف نشود $|x|+0^2=0$



الف) $\cos 120^\circ = -\frac{1}{2} \xrightarrow{\text{قرینه}} +\frac{1}{2} \rightarrow \left\{ 2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6} \right\}$

ب) $\cos 240^\circ = -\frac{1}{2} \xrightarrow{\text{قرینه}} +\frac{1}{2} \rightarrow \left\{ 2k\pi - \frac{\pi}{6}, 2k\pi - \frac{5\pi}{6} \right\}$

