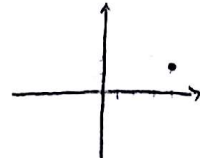


۱) $\text{if } (x_1, y_1) \in f$
 $\text{if } (x_2, y_2) \in f$
 $x_1 = x_2 \rightarrow y_1 = y_2$ ✓

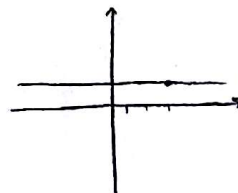
$y_1^3 - x_1 = 2x_1^2$
 $y_2^3 - x_2 = 2x_2^2$
 $\rightarrow y_1^3 = y_2^3 \rightarrow y_1 = y_2$ ✓ (۲)

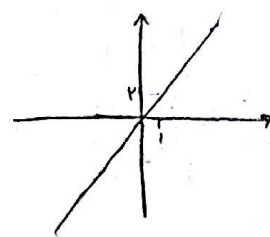
تابع است

۲) $x=0 \rightarrow |y|=3 \rightarrow y=\pm 3$ تابع نیست

۳) $|y-2| = -\sqrt{x-4} \rightarrow y=2, x=4 \rightarrow (4, 2)$ 
 نقطه در صورتی ممکن است که در طرف برابر صند باشد
 تابع است

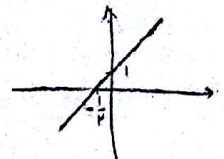
۴) $x=0 \rightarrow \cos y > 0 \rightarrow y = \frac{\pi}{2}, \frac{3\pi}{2} \rightarrow (k\pi + \frac{\pi}{2})$ تابع نیست

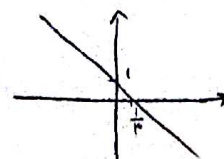
۵) $y=1^x$ ✓ 

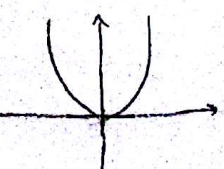
$\rightarrow y=2x+b$
 $2=2(1)+b$
 $\rightarrow y=2x$ ✓  (۲)

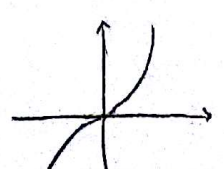
۶) $y=x \rightarrow a=1, b=0 \rightarrow a+2b=1+0=1$ ✓

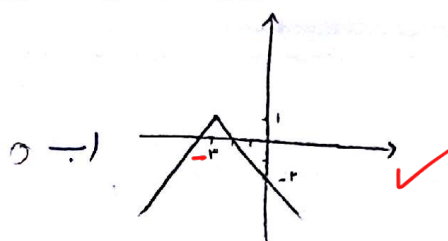
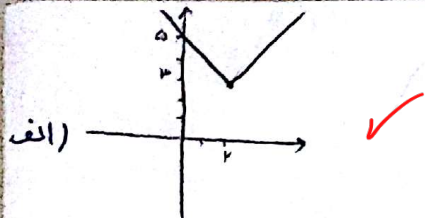
۷) $\frac{-b}{2a} = 2 \rightarrow \frac{-a}{2} = 2 \rightarrow -a=4 \rightarrow a=-4$
 $\frac{-\Delta}{4a} = 1 \rightarrow \frac{-b^2+4ac}{4a} \rightarrow \frac{-(-4)^2+4 \cdot b}{-4} = 1 \rightarrow \frac{-16+4b}{-4} = 1$
 $b=1+4=5$
 $a+2b = -4+10=6$ ✓

۸)  ✓

۹)  ✓

۱۰)  ✓

۱۱)  ✓



٢.٥

٢.٤

١) $x^2 - 4x \neq 0 \rightarrow x(x-4) \neq 0 \rightarrow x \neq 0, 4$ $D_f = \mathbb{R} - \{0, 4\}$

٢) $x^2 - 7x + 14 \neq 0 \rightarrow \Delta = b^2 - 4ac = 49 - 56 < 0$ $D_f = \mathbb{R}$

٣) $x^2 + x + 4 \neq 0 \rightarrow \Delta = 1 - 16 < 0$ $D_f = \mathbb{R}$

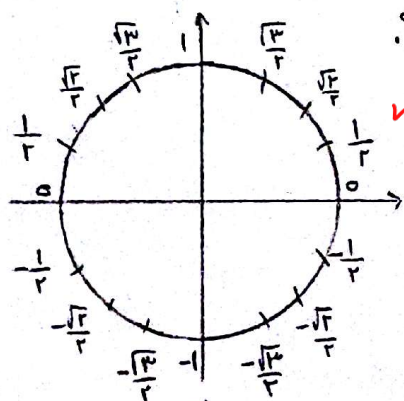
٤) $x^2 - 4x^2 \neq 0 \rightarrow x^2(x^2 - 4) \neq 0 \rightarrow x \neq 0, \pm 2$ $D_f = \mathbb{R} - \{0, 2, -2\}$

٥) $4 - x > 0 \rightarrow x < 4$ / $x - 2 > 0 \rightarrow x > 2$ $D_f = (2, 4)$

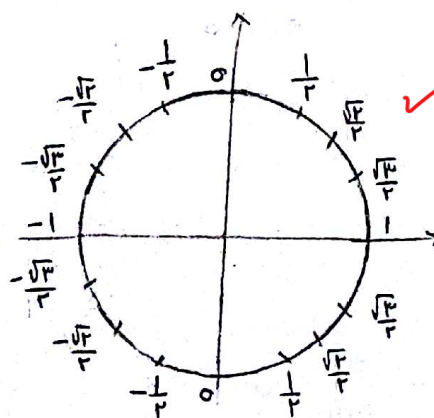
٦) $x^2 + 1 \neq 0 \rightarrow x^2 \neq -1$ $D_f = \mathbb{R}$

٧) $x - 2 < 0 \rightarrow x < 2$
 $x - 4 \neq 0 \rightarrow x \neq 4$ $D_f = (-\infty, 2) - \{4\}$

٨) $|x| + x^2 \neq 0$ $D_f = \mathbb{R} - \{0\}$



٢.٩



٢.٧

٢. ١٥

$$\text{الف) } \cos \frac{2\pi}{3} = -\frac{1}{2} \xrightarrow{\text{قوسين}} \frac{1}{2} \quad \sin \frac{\pi}{4} = \sin \frac{5\pi}{4} = \frac{1}{2} \quad \checkmark$$

$$\text{ب) } \cos \frac{11\pi}{6} = \frac{\sqrt{3}}{2} \xrightarrow{\text{قوسين}} -\frac{\sqrt{3}}{2} \quad \sin \frac{4\pi}{3} = \sin \frac{5\pi}{3} = -\frac{\sqrt{3}}{2} \quad \checkmark$$