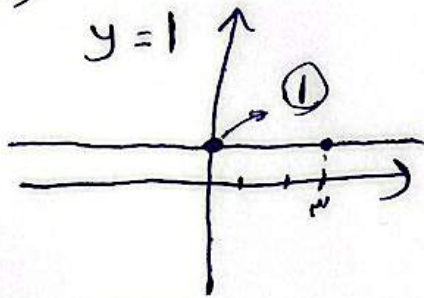
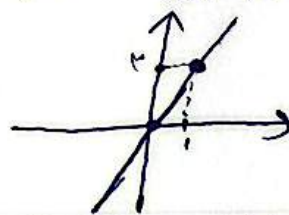


الف) $y^3 - n = 2n^2 \rightarrow y^3 = 2n^2 + n \rightarrow y^3 = 2n^2 + n \rightarrow y^3 = 2n^2 + n \rightarrow y^3 = 2n^2 + n$
 $\{y^3 = 2n^2 + n\}$ $y^3 = 2n^2 + n$ $y^3 = 2n^2 + n$ $y^3 = 2n^2 + n$
 $\rightarrow y_1 = y_2$ (✓) تابع است
 ب) $|y| + n^2 = n + 3 \rightarrow |y| = -n^2 + n + 3 \xrightarrow{n=0} |y| = 3 \rightarrow y = \pm 3$ (X) تابع نیست
 2) $\sqrt{n-4} + |y-2| = 0 \rightarrow \sqrt{n-4} = -|y-2| \rightarrow \sqrt{n-4} = 0 \wedge |y-2| = 0 \rightarrow n=4 \wedge y=2$ (✓) تابع است
 د) $n = \cos y \xrightarrow{n=0} \cos y = 0 \rightarrow y = \left\{ \frac{\pi}{2}, \frac{3\pi}{2} \right\}$ (X) تابع نیست

الف)



ب) $y = an + b \rightarrow 2 = a + b$
 $a = 2 \rightarrow b = 0 \rightarrow y = 2n$



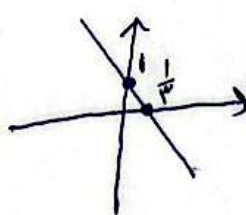
الف) $y = an + b = n \quad a=1 \quad b=0$
 $a+2b = 1+0 = 1$ (✓)

ب) $n^2 + an + b$
 $2 \rightarrow -\frac{a}{2} = 2 \rightarrow a = -4$
 $1 \rightarrow \frac{a^2 - 4b}{4} = 1 \rightarrow \frac{16 - 4b}{4} = 1 \rightarrow 16 - 4b = 4 \rightarrow 4b = 12 \rightarrow b = 3$
 $a^2 - 4b = 16 - 12 = 4 \rightarrow 4 - 4b = -4 \rightarrow b = 2$
 $a+2b = -4 + 4 = 0$ (X)

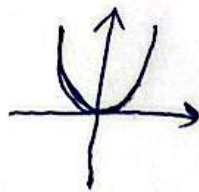
الف) $y = 2n + 1 \xrightarrow{y=0} 0 = 2n + 1 \rightarrow n = -\frac{1}{2}$
 $n = -\frac{1}{2} \rightarrow y = 1$



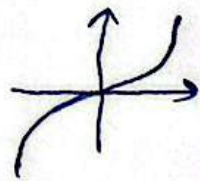
ب) $y = -2n + 1 \xrightarrow{y=0} 0 = -2n + 1 \rightarrow n = \frac{1}{2}$
 $y = 1 \rightarrow n = \frac{1}{2}$



ج) $y = n^2$



د) $y = n^3$



الف) $y = |n-2| + 3$

ب) $y = -|n+3| + 1$

الف) $n^r - fm \neq 0 \rightarrow m(m-r) \neq 0 \rightarrow Df = R - \{0, r\}$

ب) $n^r - \sqrt{n} + 19 \rightarrow \Delta < 0 \rightarrow Df = R$

ج) $n^r + m + r \neq 0 \rightarrow \Delta < 0 \rightarrow Df = R$

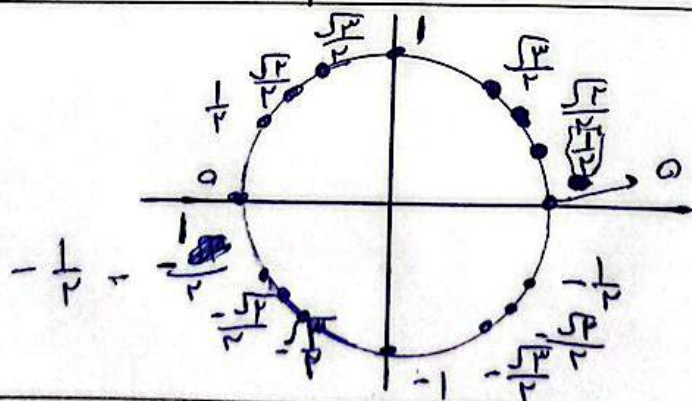
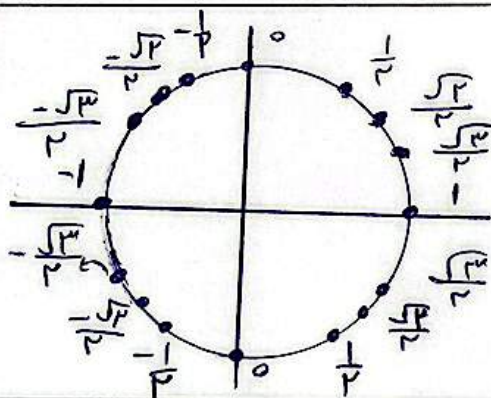
د) $n^r - fm \neq 0 \rightarrow n^r(m-r) \neq 0 \rightarrow n^r(m+r)(m-r) \neq 0 \rightarrow Df = R$

الف) $9-m \geq 0 \rightarrow m-r \geq 0 \rightarrow r \leq m \leq 9 \rightarrow Df = [r, 9]$

ب) $n^r + 1 \neq 0 \rightarrow Df = R$

ج) $m-r \geq 0 \rightarrow m \geq r \rightarrow m-r \neq 0 \rightarrow Df = [r, +\infty) - \{r\}$

د) $|n| + n^r \neq 0 \rightarrow n \neq 0 \rightarrow Df = R - \{0\}$



$-\cos \frac{r\pi}{9} = \frac{1}{2} \rightarrow \sin \frac{\pi}{9}, \sin \frac{8\pi}{9} = \frac{1}{2}$ (الف)

$-\cos \frac{11\pi}{9} = -\frac{\sqrt{3}}{2} \rightarrow \sin \frac{8\pi}{9}, \sin \frac{5\pi}{9} = \frac{\sqrt{3}}{2}$