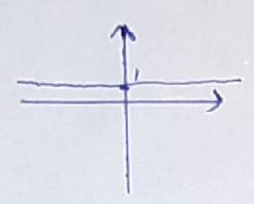
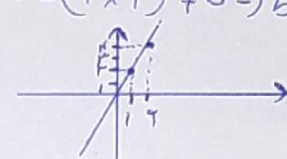
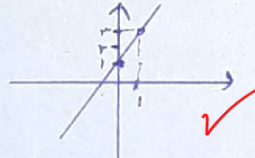
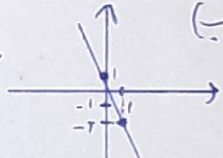
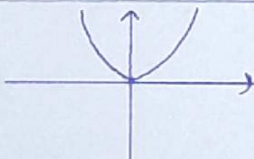
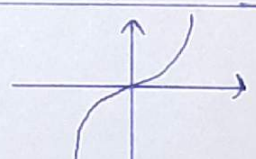
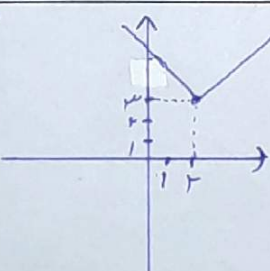
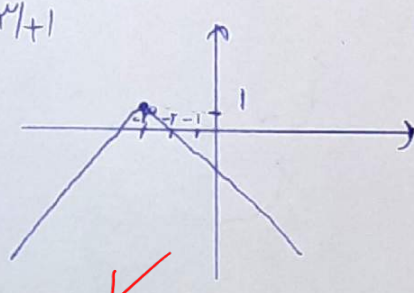
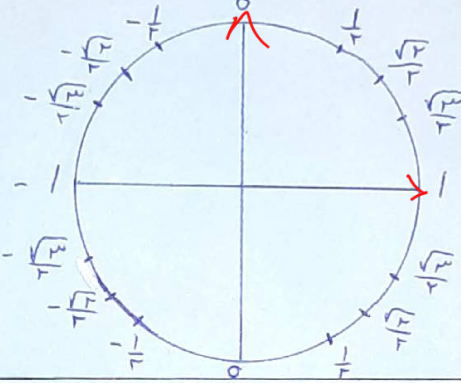
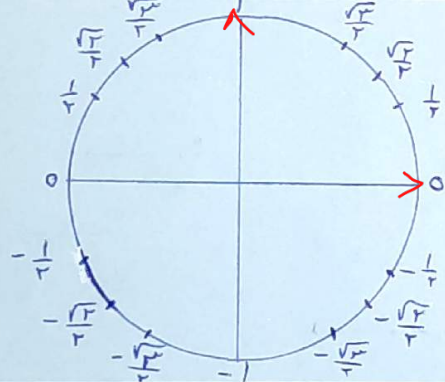


(الف) $y_1 - n_1 = 2n_1^2$ $y_2 = 2n_2^2 + n_2$ $n_1 = n_2$ $\rightarrow y_1 = y_2$ $\Rightarrow y_1 = y_2$ (تابع است) (تعریف ریاضی) ✓	(ب) $y = -n^2 + n + 3$ $n=0 \rightarrow y = 0+0+3=3$ $y =3 \Rightarrow y = \pm 3$ $\Rightarrow$ مشار تقص ۱، ۲، ۳ دارد (تابع نیست) ✓	۲ ۱
(ج) $\sqrt{n-2} + y-2 = 0$ $\Rightarrow \sqrt{n-2} = 0$ $\Rightarrow n=2$ $y-2 =0 \Rightarrow y=2$ $\Rightarrow$ فقط در ازای $n=2$ این عبارت تعریف می شود (تابع است) ✓	(د) $n = \cos y$ $n=0 \Rightarrow \cos y = 0 \Rightarrow y = 90^\circ$ و 270° $\Rightarrow$ مشار تقص ۱، ۲، ۳ دارد (تابع نیست) ✓	۲ ۲
(ه) $y = k$ $\Rightarrow y = 1$ (تابع ثابت) $\Rightarrow$ نمودار ثابت $\Rightarrow$ نمودار از $n=1$ ✓ 	(ب) $y = an + b$ $a=2$ $y = 2n + b$ $2 = (2 \times 1) + b \Rightarrow b = 0$ $y = 2n + 0$ $y = 2n$ $\Rightarrow$ نمودار از $n=1$ با شیب ۲ ✓ 	۲ ۲
(اف) $y = n$ $y = an + b \Rightarrow an + b = n$ $\Rightarrow a=1$ $b=0$ $a + 2b = 1 + (2 \times 0) = 1$ ✓	(ب) $y = an^2 + bn + c$ $\Rightarrow$ $\frac{-b}{2a} = \frac{-6}{2 \times 2} = -\frac{3}{2}$ $\Rightarrow \frac{-a}{2} = -2$ $\Rightarrow a = 4$ $4 + (-1) + b = 1 \Rightarrow b = -2$ $n + 2b = -1 + (2 \times -2) = -5$ ✓	۳ ۲
(اف) $y = 2n + 1$ $\begin{cases} n=0 & y=1 \\ n=1 & y=3 \end{cases}$ ✓ 	(ب) $y = -3n + 1$ $\begin{cases} n=0 & y=1 \\ n=1 & y=-2 \end{cases}$ ✓ 	۴ ۲
(ع) $y = n^2$ ✓ 	(د) $y = n^3$ ✓ 	۴ ۲
(اف) $y = n-2 + 3$ ✓ 	(ب) $y = - n+3 + 1$ ✓ 	۴ ۵

$y = \frac{n+4}{n^2-4n}$ خرج $\neq 0$ $n^2-4n \neq 0$ (اف) $n(n-4) \neq 0$ $n \neq 0, 4$ $D_f = \mathbb{R} - \{0, 4\}$ ✓	$y = \frac{n+4}{n^2-4n+15}$ خرج $\neq 0$ $n^2-4n+15 \neq 0$ (ب) $\Delta = b^2-4ac = 16-4(15) = -16 < 0$ ✓ $D_f = \mathbb{R}$	6 2
$y = \frac{n+4}{n^2+n+4}$ خرج $\neq 0$ $n^2+n+4 \neq 0$ (ج) $\Delta = b^2-4ac = 1-4(4) = -15 < 0$ ✓ $D_f = \mathbb{R}$	$y = \frac{n+4}{n^2-4n}$ خرج $\neq 0$ $n^2-4n \neq 0$ (د) $n^2-4n \neq 0$ $n(n-4) \neq 0$ $n \neq 0, 4$ $D_f = \mathbb{R} - \{0, 4\}$ ✓	6 2
$y = \sqrt{4-n} + \sqrt{n-2}$ $4-n \geq 0$ $n \leq 4$ (اف) $n-2 \geq 0$ $n \geq 2$ ✓ $D_f = [2, 4]$	$y = \frac{2n+1}{n^2+1}$ خرج $\neq 0$ $n^2+1 \neq 0$ $n^2 \neq -1$ (ب) $D_f = \mathbb{R}$ ✓	2 7
$y = \frac{\sqrt{n-2}}{n-2}$ $n-2 \geq 0$ $n \geq 2$ (ج) $n-2 \neq 0$ $n \neq 2$ ✓ $D_f = [2, +\infty) - \{2\}$	$y = \frac{2n+2}{ n +n^2}$ خرج $\neq 0$ $ n +n^2 \neq 0$ (د) $ n \neq 0$ $n \neq 0$ $D_f = \mathbb{R} - \{0\}$ ✓	2 8
		
		
$\frac{2\pi}{3} = 120^\circ$ $\cos 120^\circ = -\frac{1}{2}$ قرینه $\frac{1}{2}$ (اف) $\sin 120^\circ = \frac{1}{2} \Rightarrow \frac{\pi}{6} = 30^\circ$ $\sin 120^\circ = \frac{1}{2} \Rightarrow \frac{5\pi}{6} = 150^\circ$ ✓	$\frac{11\pi}{9} = 220^\circ$ $\cos 220^\circ = -\frac{\sqrt{3}}{2}$ قرینه $-\frac{\sqrt{3}}{2}$ (ب) $\sin 220^\circ = -\frac{\sqrt{3}}{2} \Rightarrow \frac{4\pi}{3} = 240^\circ$ $\sin 220^\circ = -\frac{\sqrt{3}}{2} \Rightarrow \frac{5\pi}{3} = 300^\circ$ ✓	2 10