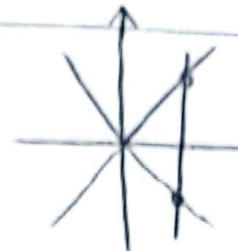


$$f = \{(1, 2a), (1, a^2 + 3), (2, 3a)\} \xrightarrow{\text{نقطة}} f_a = a^2 + 3, \text{ و } a^2 - f_a = -3 \quad (1)$$

$$a(a-3) = -3 \Rightarrow \boxed{a = 1, 2}$$

$\downarrow$
 $\begin{cases} 1 & x = -3 \\ 2 & x = -1 \end{cases}$

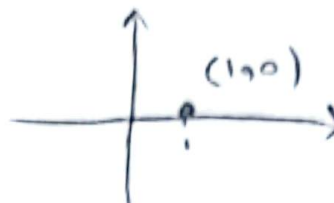
الف) $|y| = |x| \Rightarrow y = |x|$
 $\quad \quad \quad y = -|x|$



تابع
 (3, 1) و (1, 3)

ب) $|y| + \sqrt{x-1} = 0 \rightarrow \text{موجب} \rightarrow \text{موجب}$

$|y| = 0 \Rightarrow y = 0 / \sqrt{x-1} = 0 \Rightarrow x = 1$



الف) $|y-1| = \sqrt{x-2} \xrightarrow{x=y} |y-1| = \sqrt{y-2} \Rightarrow |y-1| = 2$ (2)

$$y-1 = 2 \Rightarrow y = 3$$

$$y-1 = -2 \Rightarrow y = -1$$

غير صحيح

ب) $y^5 - y = \frac{x^r}{r} \xrightarrow{x=0} y^5 - y = 0 \Rightarrow y(y^4 - 1) = 0$ (3)

$y = 0, 1, -1$

ج) $\sin^r x + \cos^r \frac{y}{r} = 1 \Rightarrow 0 + \cos^r \frac{y}{r} = 1$

$\frac{y}{r} = 0, 180^\circ \Rightarrow y = 0, 180^\circ$

د) $rxy = n \xrightarrow{x=0} r \cdot 0 \cdot y = 0$ (4)

$y = 1, 2, 3, \dots$

الف) $x^2 + |y-1| = r_n \xrightarrow{x=1} 1 + |y-1| = r \Rightarrow |y-1| = r$

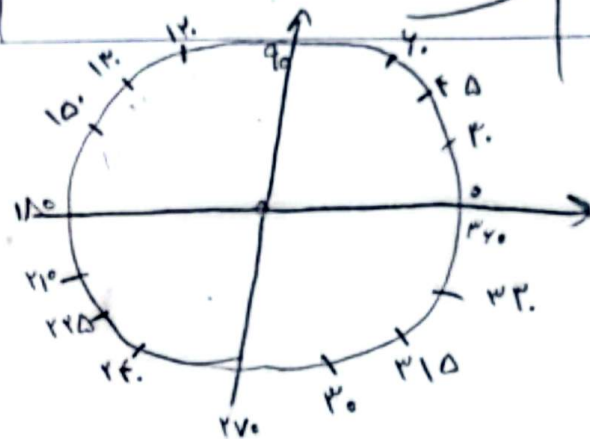
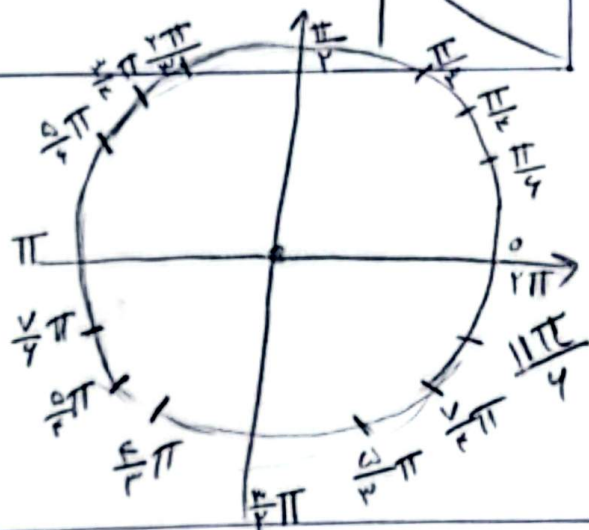
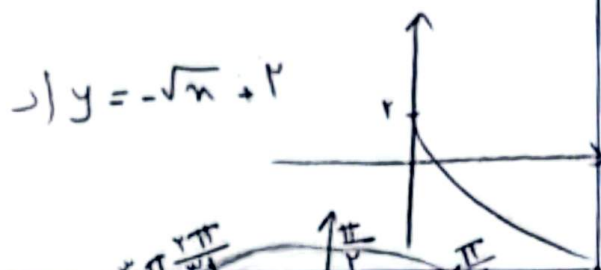
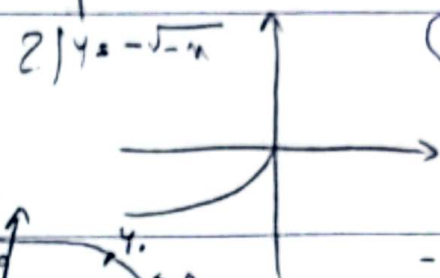
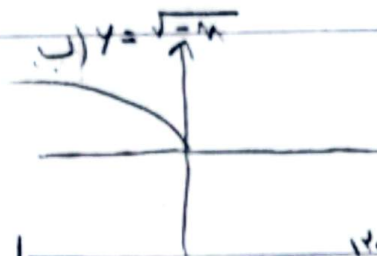
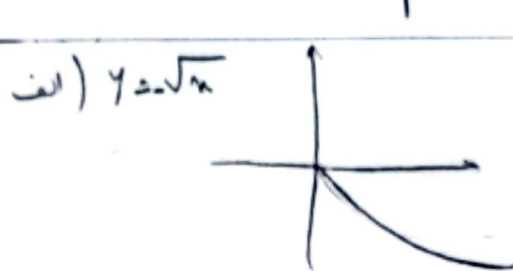
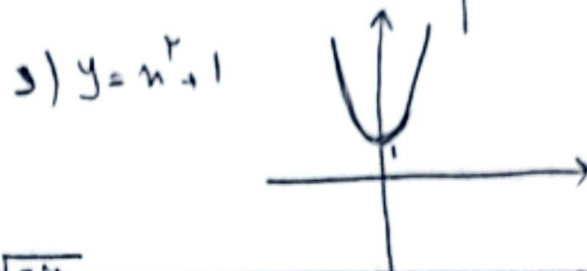
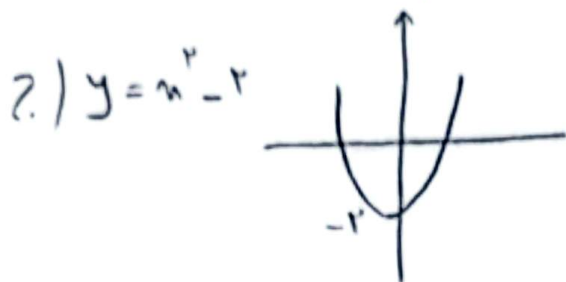
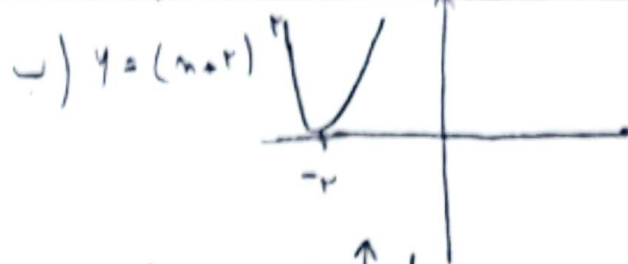
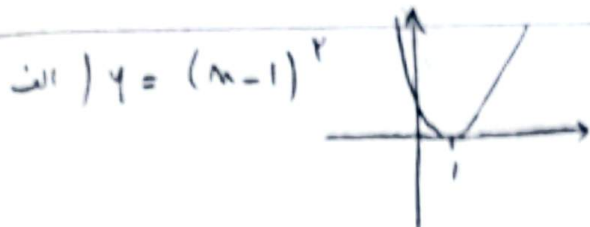
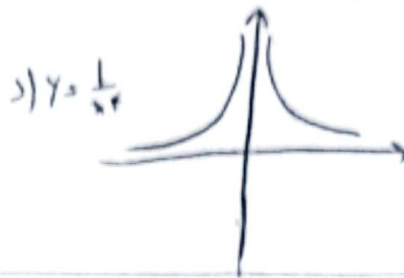
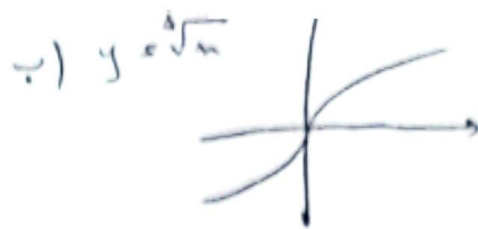
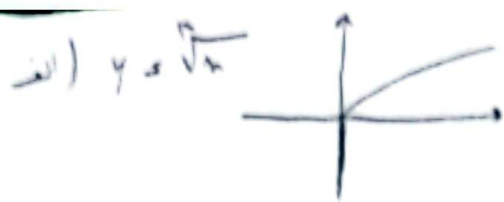
$y = r$
 $y = -r$

ب) $y^5 + r_n = 0 \rightarrow y_1^5 + r_{n_1} = y_r^5 + r_{n_r} \xrightarrow{n_1 = n_r} y_1^5 = y_r^5$

$(y_1, n_1) \in f \xrightarrow{\text{if } n_1 = n_r} y_r = y_1$

$(y_r, n_r) \in f$

$\sqrt[n]{y_1^5} = \sqrt[n]{y_r^5} \Rightarrow y_1 = y_r$ صحيح



الف) $\cos 12^\circ = -\frac{1}{2}$

ب) $\sin 12^\circ = \frac{1}{2}$

ج) $\cos \frac{5\pi}{4} = -\frac{1}{2}$

د) $\sin \frac{11\pi}{4} = -\frac{1}{2}$