

الف) $y = x + |2x - 5|$

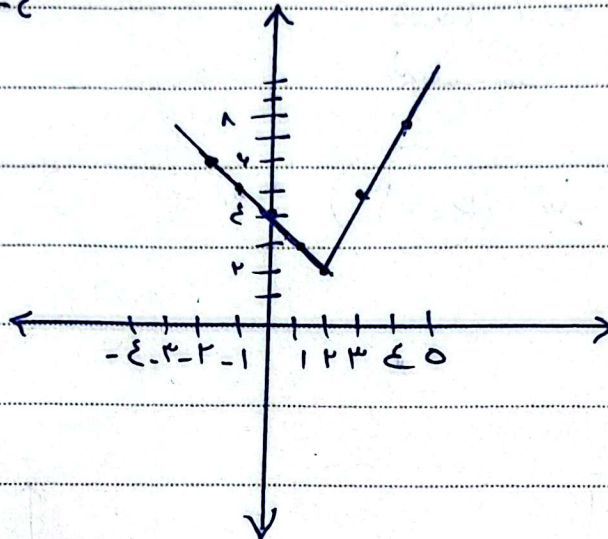
$2x = 5 \rightarrow x = 2.5$

①

$$\begin{array}{c|c} 2 & \\ \hline x - 2x + 5 & x + 2x - 5 \\ \hline -x + 5 & 3x - 5 \end{array}$$

x	2	3	5
y	2	0	1

x	2	0	-1	1	-2
y	2	5	0	3	4



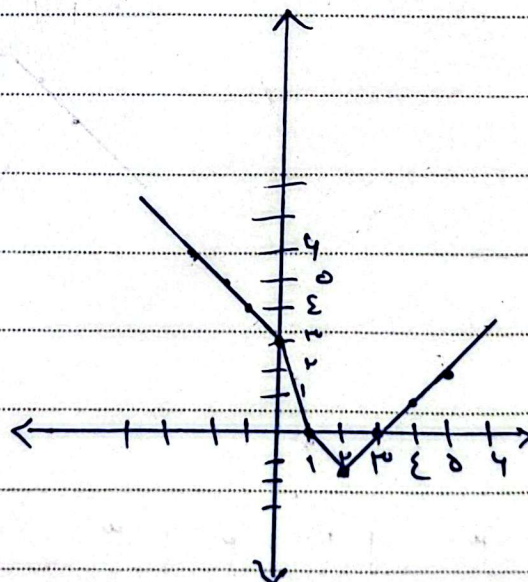
$$\begin{array}{c} x = 2.5 \\ x = 1 \\ x = 0 \end{array}$$

ب) $y = |x - 2| + |x + 1| - |x|$

0	1	2
$-x + 2$	$-2x + 3$	$-x + 1$
$x - 2$	$x + 1$	$x - 2$

0	1	2	3	4	5
2	0	-1	0	1	2

-1	-2	-3
2	0	4



Subject

Date : Year:

Month:

Day:

$$|km - k| = |a + 2| = K$$

$9 \quad k=2 \quad a=2$

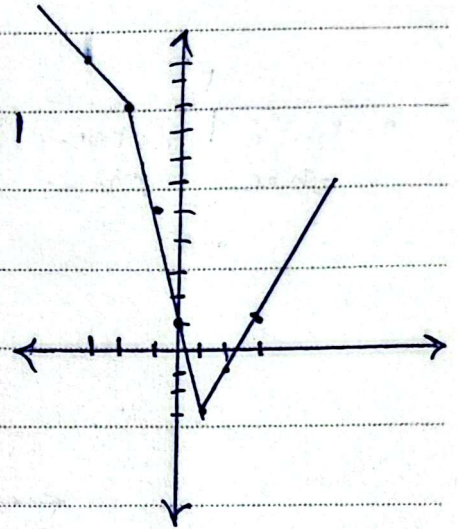
این معادله یک خطی در مختصات k است (۲)

$$\begin{array}{c} -2 \quad 1 \\ -k_{a+2} + k_{a+2} - k_{a+2} + k_{a+2} - 2 \quad km - k - a - 2 \end{array} \rightarrow \min \text{ تابع } = 1$$

(۲) $-k_{a+2}$ (۳) $km - 0$

-2a+0 $\rightarrow$ منفی $\rightarrow$ مثبت

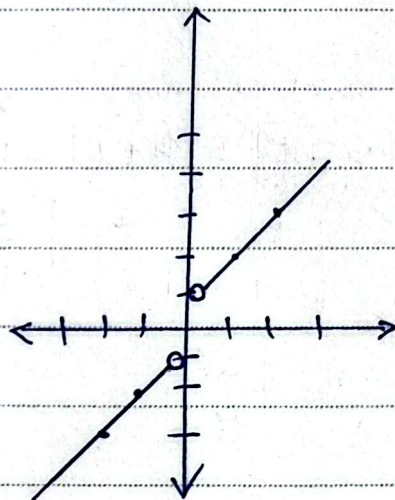
$$f(1) = -3 \quad (k=3)$$



الف) $y = a + \frac{a}{|a|}$

$$\begin{array}{c} 0 \\ a-1 \quad a+1 \end{array}$$

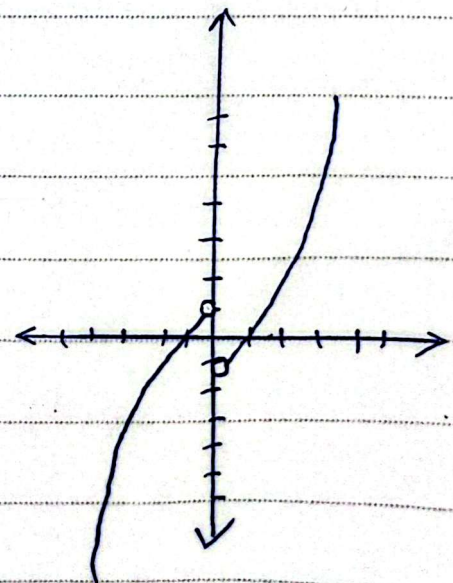
-1	-2	1	2
-2	-3	2	3



ب) $a|a| = \frac{a}{|a|}$

$$\begin{array}{c} 0 \\ -a+1 \quad a-1 \end{array}$$

-1	-2	-3	1	2	3
0	-3	-1	0	3	1



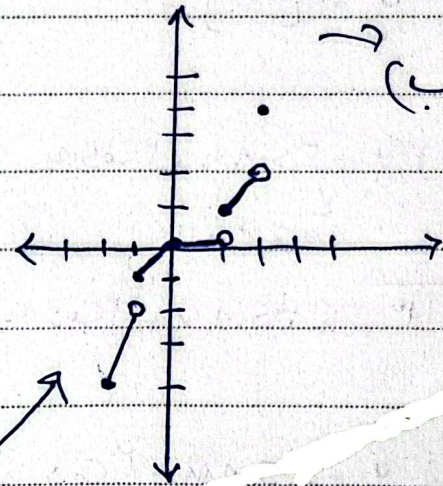
الف) $y = [u] - 2m$

if $u \leq -2$ $\left| \begin{array}{c} 2 \\ -2 \end{array} \right|$ $1 \leq u < 2 \rightarrow 1 - 2m$

$0 \leq u < 1 \rightarrow -2m$

$-1 \leq u < 0 \rightarrow -2m - 1$

$-2 \leq u < -1 \rightarrow -2m - 2$



(4)

(شکل ب)

ب) $[u] | u |$

if $u \leq -2$ $\left| \begin{array}{c} 2 \\ \varepsilon \end{array} \right|$

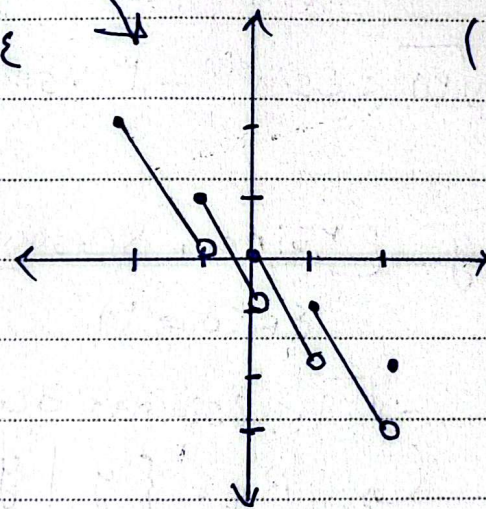
if $u \leq -2$ $\left| \begin{array}{c} -2 \\ -\varepsilon \end{array} \right|$

$1 \leq u < 2 \rightarrow |u|$

$0 \leq u < 1 \rightarrow 0$

$-1 \leq u < 0 \rightarrow -|u|$

$-2 \leq u < -1 \rightarrow -2|u|$



د/شکل
الف

الف) $y = 3m - [3u]$ $0 \leq u - [u] < 1$

$-1 < [u] - u \leq 0$

$R_y = [0, 1)$

ب) $y = \varepsilon m - \varepsilon [u]$ $R_y = [0, \varepsilon)$

$\varepsilon(u - [u]) \rightarrow [0, +\infty)$

ج) $y = u - \delta \left[\frac{u}{\delta} \right]$

$\delta \left(\frac{u}{\delta} \right) - \delta \left[\frac{u}{\delta} \right] \rightarrow \delta \left(\frac{u}{\delta} - \left[\frac{u}{\delta} \right] \right)$

$R_y = [0, +\delta)$

$$>) y = [r_m] - r_m \quad R_y = (-1, 0] \quad (2)$$

$$\text{الف) } y = r \sin u + r \cos u$$

$$\frac{r}{9} + \frac{r}{9} \rightarrow 14$$

$$-\sqrt{14} \leq r \sin u + r \cos u \leq +\sqrt{14} \quad R_y = [-\sqrt{14}, \sqrt{14}] \quad (4)$$

$$\text{ب) } y = 4 \sin u - 3 \cos u$$

$$14 + 9 \rightarrow 20$$

$$-\sqrt{20} \leq 4 \sin u - 3 \cos u \leq \sqrt{20} \quad R_y = [-\sqrt{20}, \sqrt{20}]$$

$$\text{ج) } y = [r \sin u + \delta \cos u]$$

$$4 + 20 = 24$$

$$-\sqrt{24} \leq r \sin u + \delta \cos u \leq \sqrt{24}$$

$$\hookrightarrow R_y = \{y \mid y \in \mathbb{Z}, -4 \leq y \leq 4\}$$

$$>) y = \sqrt{\cos u - r \sin u}$$

$$1 + 4 \rightarrow 5$$

$$-\sqrt{5} \leq \cos u - r \sin u \leq +\sqrt{5} \rightarrow \sqrt{[-\sqrt{5}, +\sqrt{5}]}$$

$$\hookrightarrow R_y = [0, +\sqrt{5}]$$

$$\text{د) } y = \sin r_m + r \sin u + r$$

$$\frac{-b}{ra} \Rightarrow -\frac{r}{r} \rightarrow y = -\frac{1}{2} \text{ } 004$$

$$n = -1 \rightarrow y = 0$$

$$n = 1 \rightarrow y = 4$$

$$R_y = [0, 4]$$

$$ب) y = r \sin^2 \theta + k \sin \theta + v$$

(V)

$$-\frac{b}{2a} = -\frac{k}{2} \rightarrow y = \frac{v}{1}$$

$$n=2 \rightarrow y=1 \quad R_y = [\frac{v}{1}, v]$$

$$n=1 \rightarrow y=v$$

$$الف) y = \sin^2 \theta + k \cos^2 \theta$$

(A)

$$\underbrace{\sin^2 \theta + \cos^2 \theta}_1 + \frac{k \cos^2 \theta}{1}$$

$$0 \leq \cos^2 \theta \leq 1$$

$$\cdot k \rightarrow 0 \leq k \cos^2 \theta \leq k$$

$$+1 \rightarrow 1 \leq k \cos^2 \theta + 1 \leq k+1 \rightarrow R_y = [1, k+1]$$

$$ب) y = \frac{k \cos \theta}{1 + \cos^2 \theta}$$

$$\frac{\frac{k \cos \theta}{\sin \theta}}{\frac{1}{\sin^2 \theta}} = \frac{k \cos \theta \sin^2 \theta}{\sin \theta}$$

$$R_y = [-1, 1]$$

$$\sin^2 \theta \leq k \cos \theta \sin \theta$$

$$الف) y = \sin^4 \theta + \cos^4 \theta$$

(A)

$$r^{1-k} \leq \sin^4 \theta + \cos^4 \theta \leq 1 \quad \frac{1}{2} \leq \sin^4 \theta + \cos^4 \theta \leq 1$$

$$R_y = [\frac{1}{2}, 1]$$

ب) $y = [\sin^n x + \cos^n x]$

(9)

$$1 - \varepsilon \leq \sin^n x + \cos^n x \leq 1 \quad R_y = [0, 1]$$

$$\frac{1}{\lambda} \leq \sin^n x + \cos^n x \leq 1 \quad \text{نوی برآورد}$$

5 $\frac{1}{\lambda} \leftarrow \text{دعای برآورد} \quad [\frac{1}{\lambda}] \rightarrow 0 \quad [1] \rightarrow 1$

این) $y = \frac{2m^2 + m - 1}{m + 1}$

10 $\frac{(m+1)(2m-1)}{(m+1)} \Rightarrow (2m-1)$

$m \neq -1 \rightarrow y \neq -9$

$R_y \Rightarrow R - \{-9\}$

ب) $\frac{m^2 - 1}{m - 1} \rightarrow \frac{(m-1)(m+1)}{(m-1)}$

$m \neq 1 \quad y \neq 2$

$m^2 + m + 1$
 $[\frac{1}{\varepsilon}, +\infty)$

$R_y = [\frac{1}{\varepsilon}, +\infty)$

این نقطه را قرار ده

