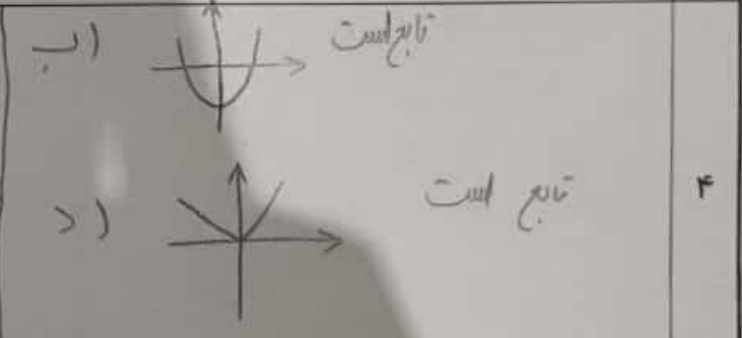
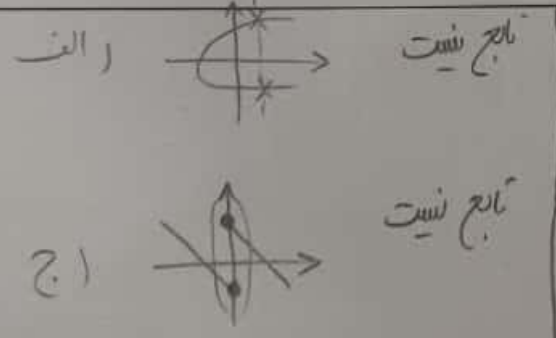


الف)  $9 = 3x - y \Rightarrow y = 3x - 9$   $\left\{ \begin{aligned} (3x-9)^2 &= -4-x \Rightarrow \sqrt{3x-9} = 1 \end{aligned} \right.$   $\frac{1}{-3}$   
 $-4 = x + 2y \Rightarrow y = \frac{-4-x}{2}$   $\left\{ \begin{aligned} 3x-9 &= -4-x \Rightarrow x=2 \Rightarrow y=-3 \end{aligned} \right.$

ب)  $\frac{1}{x} - \frac{1}{y} = \frac{y-x}{xy} = -1 \Rightarrow 3y - 3x = -3xy$   $\left\{ \begin{aligned} 3y - 3x &= \Delta y - Vx \\ 3x &= 3y \\ 3x &= y \Rightarrow \frac{x}{y} = \frac{1}{3} \end{aligned} \right.$   
 $\frac{\Delta}{x} - \frac{V}{y} = \frac{\Delta y - Vx}{xy} = -1 \Rightarrow \Delta y - Vx = -3xy$

$(1, a+1) (a+1, -2) \Rightarrow a = -3 \Rightarrow f = \{(-3, -4) (1, -2) (1, 2) (2, b)\}$   
 $f(a) + 2f(2) = 3f(1)$   
 $-4 + 2b = -4$   
 $2b = 0$   
 $b = 0$

$m^2 - 3m = -2$  if  $m=1 \Rightarrow f = \{(-1, -2) (3, 5) (-1, -2) (2, 4) (2, 4) (3, 5)\}$   
 $m^2 - 3m + 2 = 0$  if  $m=2 \Rightarrow f = \{(-1, -2) (3, 5) (-1, -2) (2, 4) (2, 4) (4, 9)\}$   
 $(m-1)(m-2) = 0$   
 ① ✗ ② ✗  
 جمع شده



الف)  $y_1 = -\sqrt{x+1}$   $y_2 = -\sqrt{x+1}$   $\left\{ \begin{aligned} x &= x_2 \\ y_1 &= y_2 \end{aligned} \right.$  تابع است

ب)  $x = \frac{y}{\sqrt{1-y^2}} \Rightarrow \frac{y_1}{\sqrt{1-y_1^2}} = \frac{y_2}{\sqrt{1-y_2^2}} \Rightarrow \frac{y_1^2}{1-y_1^2} = \frac{y_2^2}{1-y_2^2} \Rightarrow y_1^2 - y_1^2 y_2^2 = y_2^2 - y_1^2 y_2^2 \Rightarrow y_1 = y_2$  تابع است

y<sub>1</sub> و y<sub>2</sub> هم علامت

الف)  $|k| = \mu \quad |-k| = \mu \rightarrow$  ناقص

$\rightarrow y_1^k + \mu y_1^r + \mu y_1 = y_1^k + \mu y_1^r + \mu y_1$

$y_1^k - y_1^r = \mu y_1^r + \mu y_1 - \mu y_1^r - \mu y_1 \Rightarrow (y_1 - y_r)(y_1^r + y_1 y_r + y_1^r) = \mu (y_r - y_1)(y_r + y_1 + 1)$

$(y_1 - y_r)(y_1^r + y_1 y_r + y_1^r) + \mu (y_1 - y_r)(y_r + y_1 + 1) = 0 \quad \underbrace{(y_1 - y_r)}_{y_1 = y_r} (y_1^r + y_1 y_r + y_1^r + \mu y_r + \mu y_1 + \mu) = 0$

$\mu y_1^r + y_1 (y_r + \mu) + y_1^r + \mu y_r + \mu = 0 \quad \Delta < 0$

تابع

$\Delta = -\mu (y_r + 1)^r \Rightarrow \Delta < 0 \quad \Delta = 0 \Rightarrow y_r = -1 \Rightarrow y_1 = -1$

$f(n) = \frac{n^r + kn + k+1}{n^r + kn + k + \mu} = \frac{(n+r)^r + 1}{(n+r)^r + \mu} \rightarrow \frac{(\sqrt{\mu-k+r})^r + 1}{(\sqrt{\mu-k+r})^r + \mu} = \frac{k}{\mu} = \frac{r}{\mu}$

$f(n) = n^r + an + b \quad \begin{cases} (-1, -r) \rightarrow -r = -1 - a + b \\ \rightarrow -r = -\mu - a \Rightarrow -1 = -a \Rightarrow a = 1 \Rightarrow b = -r \end{cases}$

$n^r + n - r = \mu n - 1 \Rightarrow n^r - \mu n - 1 = 0 \Rightarrow n(n-1)(n+1) - (n+1) = 0$

$(n+1)(n^r - n - 1) = 0$

$n = -1 \Rightarrow n^r - n - 1 = 0 \quad \text{with } \frac{b}{a} = \frac{-r}{1} = -r$

$a + b = \mu a$

$a = b$

$a - \mu b + 1 = \mu a$

$a - \mu a + 1 = \mu a$

$-a + 1 = \mu a$

$\mu a = 1 \Rightarrow a = \frac{1}{\mu}$

$f(n) = \frac{kn^r - an + c + 1}{bn + \mu} = n$

$a + b + c = -\mu + k - 1 = 0$

$kn^r - an + c + 1 = bn^r + \mu n$

$(k-b)n^r - (a+\mu)n + c+1 = 0$

$k = b$

$a = -\mu$

$c = -1$