SUBJECT: .....

تمرین آبگی

(۱ الف) $\begin{cases} 9 = 3x - y \rightarrow y = 3x - 9 \\ -5 = x + 2y \rightarrow y = \frac{-5-x}{2} \end{cases} \rightarrow 7x = 14 \quad x = 2 \quad y = -3$

ب) $\frac{1}{x} - \frac{1}{y} = \frac{y-x}{xy} = -1 \rightarrow 3y - 3x = -3xy \rightarrow xy = \frac{1}{2}$

$\frac{3}{x} - \frac{7}{y} = \frac{3y - 7x}{xy} = -3 \rightarrow 3y - 7x = -3xy$

(۲

$(1, a+1) \\ (1, -2)$ $\Big\} \rightarrow a+1 = -2 \rightarrow a = -3$

$f = \{(-3, -9) \; (1, -2) \; (1, -2) \; (2, b)\}$

$-9 + 2b = f(a) + 2f(2) = 3f(1) = 9$

$2b = 0 \rightarrow b = 0$

$m^2 - 3m = -2$

$(m-1)(m-2) = 0$

$m = 2 \qquad m = 1$

(۳ $f\{(-1, -2)(3, a) \; (-1, -2)$

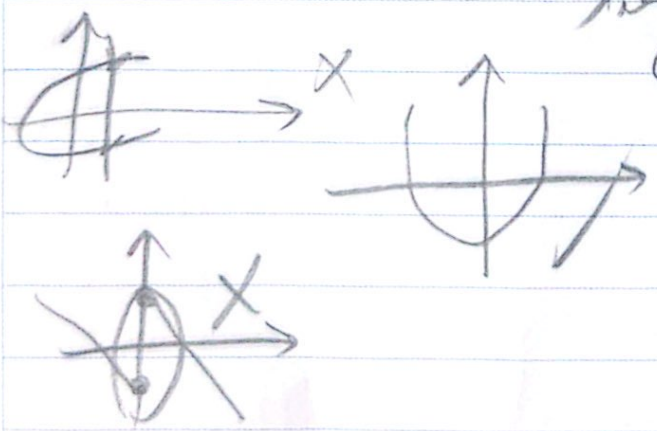
$m=1 \rightarrow (2, 9) \; (3, 5) \; (3, a)\}$

$m=2 \rightarrow f = \{(-1, -2)(3, a)(-1, -2)$

$(3, 4)\}$ ✗

هیچ مقدار

(۴



SUBJECT: . . . . . .

۵) الف) $y_1 = -\sqrt{x_1+1}$, $y_2 = -\sqrt{x_2+1}$ $\xrightarrow{x_1=x_2}$ $y_1 = y_2$ تابع است

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

$y_1^2 - y_1^2 y_2^2 = y_2^2 - y_1^2 y_2^2 \Rightarrow y_1 = y_2$ تابع است

۶) $|۳|=۳$, $|-۳|=۳$ ✗ تابع

$y_1^3 + ۳y_1^2 + ۳y_1 = y_2^3 + ۳y_2^2 + ۳y_2 \rightarrow$

$y_1^3 - y_2^3 = ۳y_2^2 + ۳y_2 - ۳y_1^2 - ۳y_1 \Rightarrow$

$(y_1-y_2)(y_1^2+y_1y_2+y_2^2) + ۳(y_1-y_2)(y_2+y_1+1) = 0$

$(y_1-y_2)(y_1^2+y_1y_2+y_2^2+۳y_1+۳) = 0 \rightarrow$

$y_1^2 + y_1(y_2+۳) + y_2^2 + ۳y_2 + ۳ = 0$

$\Delta = -۳(y_2+1)^2 \Rightarrow \Delta \leq 0$ $\rightarrow \Delta < 0$ ✓ تابع

$\rightarrow \Delta = 0 \rightarrow y_2 = -1 \rightarrow y_1 = -1$

۷) $f(x) = \frac{x^2+۴x+۴+1}{x^2+۴x+۴+۳} = \frac{(x+۲)^2+1}{(x+۲)^2+۳} \xrightarrow{\text{جابجایی}} \frac{۴}{۳} = \frac{۲}{۳}$

۸) $f(x) = x^3 + ax + b$, $y = ۳x - a$ $\xrightarrow{(-1,-۴)}$ $-۴ = -1 - a + b$, $-۴ = -۳ - a$ $\rightarrow$ $a = +1$, $b = -۲$

$x^3 + x - ۲ = ۳x - 1 \Rightarrow x^3 - ۲x - 1 = 0 \rightarrow$

$x(x-1)(x+1) - (x+1) = 0 \rightarrow (x+1)(x^2-x-1) = 0$

$x = -1$ یا $\frac{-b}{۲a} = 1$

SUBJECT : . . . . . .

$a+b=2a \rightarrow a=b$ (9

$a-2b+1=2a$

$a-2a+1=2a \longrightarrow a=\frac{1}{3}$

$f(x)=\frac{6x^2-ax+c+1}{bx+3}=x$ (10

$6x^2-ax+c+1=bx^2+3x \rightarrow \underbrace{(6-b)}_{6=b}x^2-\underbrace{(a+3)}_{a=-3}x+\underbrace{c+1}_{c=-1}=0$

$a+b+c=0$