

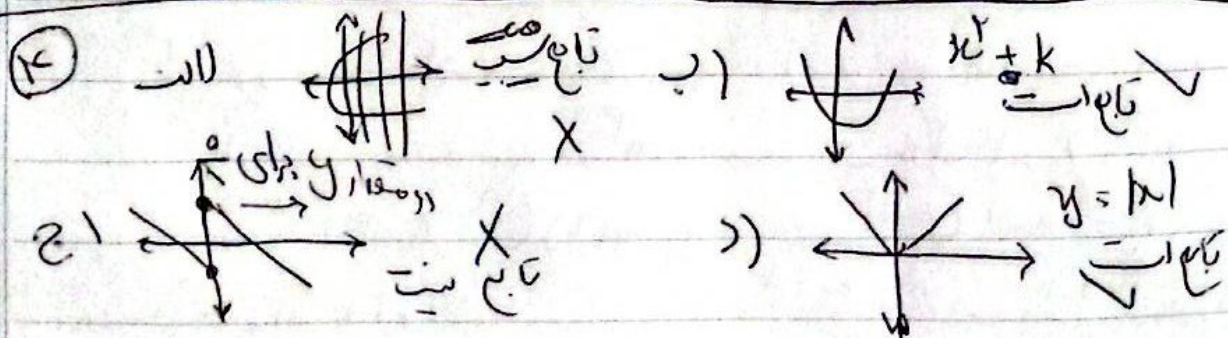
1) الف) $9 = 3x - y$ $-4 = x + 2y$ 1
 $y = 3x - 9$ → $-4 = x + 4x - 18$ → $5x = 14$ → $x = 2$
 $\Rightarrow y = 3 \times 2 - 9 = -3$ → $\frac{x}{y} = \frac{-2}{3}$

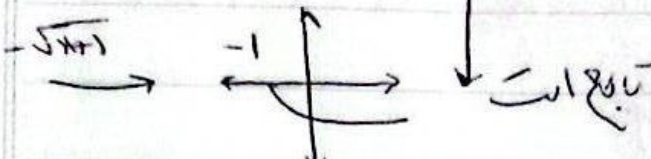
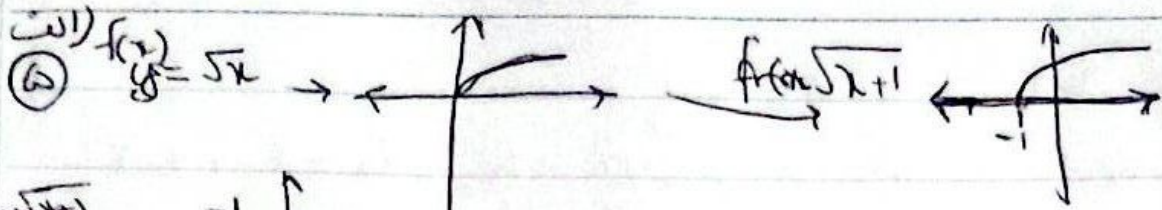
ب) $-1 = \frac{1}{x} - \frac{1}{y}$ $-3 = \frac{2}{x} - \frac{4}{y}$
 $\frac{1}{x} = -1 + \frac{1}{y}$ → $-3 = -2 + \frac{2}{y} - \frac{4}{y}$ → $2 = \frac{-2}{y}$ → $y = -1$

→ $\frac{1}{x} = -1 - 1 = -2$ → $x = \frac{-1}{-2} = \frac{1}{2}$

2) $2a + 2(b) = 3(a+1)$ $a+1 = -2$ → $a = -3$
 $-4 + 2b = -4$ → $b = 0$

3) $m^2 - 4m = -2$ → $m^2 - 4m + 2 = 0$ → $(m-1)(m-2) = 0$
 $m=1$ → $(1, 4)$ و $(1, 4)$ × \Rightarrow $m=1$
 $m=2$ → $(2, 4)$ و $(2, 2)$ × \Rightarrow $\frac{1}{2}$





ب) $x = \frac{y}{\sqrt{1-y^2}}$ $\left\{ \begin{array}{l} x_1 = \frac{y}{\sqrt{1-y^2}} \\ x_2 = \frac{y}{\sqrt{1-y^2}} \end{array} \right\} \rightarrow \frac{y_1^2}{\sqrt{1-y_1^2}} = \frac{y_2^2}{\sqrt{1-y_2^2}}$

بجای x → $y_1 = y_2$ → $y = y$ → \sqrt{x}

د) الف) $|y| = x \rightarrow y = \pm 1$ \sqrt{x}

ب) $y^3 + 3y^2 + 3y + x^3 + 1 = 0 \rightarrow y^3 + 3y^2 + 3y + 1 = -x^3 - 1$

$(y+1)^3 = -x^3 - 1 \rightarrow y = \sqrt[3]{-x^3 - 1} - 1$

و) $f(x) = \frac{(x+1)^r + 1}{(x+1)^r + 1^r} \rightarrow x = \sqrt[r]{r-1} \quad \frac{(\sqrt[r]{r})^r + 1}{(\sqrt[r]{r})^r + 1^r} = \frac{r}{r} = \frac{r}{r}$

ز) $-r = -r - a \rightarrow a = 1$ $-r = -1 - 1 + b \rightarrow b = -r$

$x^r + x - r = x - 1 \rightarrow x^r - r x - 1 = 0$

$\frac{x^r - r x - 1}{x^r - x - 1} \mid x+1$ $(x+1)(x^r - x - 1)$

$\frac{x^r - r x - 1}{x^r - x - 1}$ $\frac{1 \pm \sqrt{1+r}}{r}$

$\frac{x^r - r x - 1}{x^r - x - 1}$ $\frac{1 - \sqrt{1+r}}{r}$

$\frac{-x-1}{-x-1}$ $\frac{1}{r}$

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$$\textcircled{7} \quad a+b = \frac{1}{\mu} a \quad \frac{1}{\mu} a = a - \frac{1}{\mu} b + 1 \quad \left| \begin{array}{l} a+b = \frac{1}{\mu} a \\ \mu b = 1 \end{array} \right. \rightarrow b = \frac{1}{\mu}$$

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

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

$$\mu b = 1 \rightarrow b = \frac{1}{\mu}$$

$$\textcircled{10} \quad x(x + \mu) = \frac{1}{\mu} x^2 - ax + C + 1$$

$$\rightarrow \underbrace{bx^2} + \underbrace{\mu x} = \underbrace{\frac{1}{\mu} x^2} - \underbrace{ax} + C + 1 \quad \rightarrow C = -1 \quad b = \frac{1}{\mu} \quad a = -\mu$$

$$\frac{1}{\mu} \mu - 1 = 10$$