

$$\begin{aligned} 2x - y &= 9 \Rightarrow 2x - cy = 18 \\ x + cy &= -4 \Rightarrow \frac{x + cy = -4}{2x - cy = 18} \\ \hline 3x &= 14 \Rightarrow x = \frac{14}{3} \Rightarrow y = -\frac{2}{3} \end{aligned}$$

ب) ~~...~~ $\frac{1}{x} - \frac{1}{y} = -1 \Rightarrow \frac{-x+y}{xy} \Rightarrow -xy = y-x \Rightarrow xy = x-y$

$$\frac{a}{x} - \frac{b}{y} = -c \Rightarrow \frac{ay - bx}{xy} \Rightarrow -cx = ay - bx \Rightarrow -c(x-y) = ay - bx \Rightarrow bx - cy = ay - bx \Rightarrow 2bx - cy = ay \Rightarrow \frac{bx}{ay} = \frac{cy}{2bx - cy} \Rightarrow \frac{bx}{ay} = \frac{1}{2 - \frac{cy}{bx}}$$

$a+1 = -2 \Rightarrow a = -3$ $(a, a) = (-3, -4)$ -۵

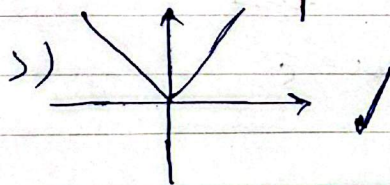
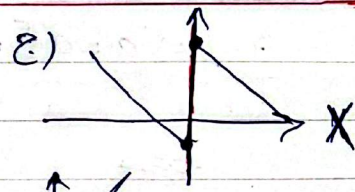
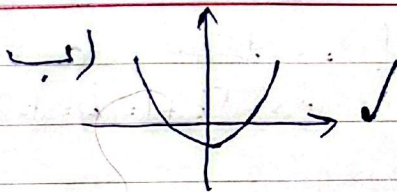
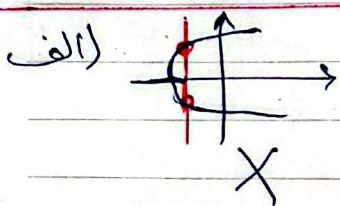
$\Rightarrow f(a) + cf(c) = cf(1) \Rightarrow -4 + cf(c) = -4 \Rightarrow cf(c) = 0 \Rightarrow f(c) = 0 \Rightarrow b = 0$

$m^2 - cm = 5 \Rightarrow m^2 - cm + c = 0 \Rightarrow (m-1)(m-c) = 0 \Rightarrow \begin{cases} m=1 \\ m=c \end{cases}$ -۶

if $m=c \rightarrow (c, c) = (5, 5)$

if $m=1 \rightarrow (c, 1) = (5, 1)$

به ازای هیچ مقدار m تابع نیست



الف) $y = -\sqrt{x+1}$

تابع هست زیرا از زیر رادیکال همیشه $\frac{1}{4}$ نامنفی است و

x باید بزرگتر از $-\frac{1}{4}$ باشد و کل عبارت همیشه نامنفی است

ب) $x = \frac{y}{\sqrt{1-y^2}}$

$\Rightarrow x(\sqrt{1-y^2}) = y \Rightarrow x^2(1-y^2) = y^2 \Rightarrow x^2 - x^2y^2 = y^2$

$\Rightarrow x^2 = y^2 + x^2y^2 \Rightarrow x^2 = y^2(1+x^2) \Rightarrow \frac{x^2}{1+x^2} = y^2 \Rightarrow y = \pm \frac{x}{\sqrt{1+x^2}}$ تابع نیست

$$\text{الف) } |y| = x \Rightarrow y = \pm x \quad \times$$

$$\text{ب) } y^2 + ay^2 + by^2 + x^2 + x = 0$$

$$\Rightarrow y^2 + ay^2 + b = 0 \Rightarrow \text{بسیار جواب صحیحی دارد} \rightarrow \times \text{ B}$$

$$\frac{(x+2)^2 + 1}{(x+1)^2 + 2} \Rightarrow \frac{(\sqrt{x-2}+1)^2 + 1}{(\sqrt{x-2}+1)^2 + 2} \Rightarrow \frac{(\sqrt{x})^2 + 1}{(\sqrt{x})^2 + 2}$$

$$\Rightarrow \frac{x+1}{x+2} = \frac{1}{2} = \frac{1}{2}$$

$$g = cx + a = 0 \Rightarrow -c + a = -c \Rightarrow a = -1 \Rightarrow y = cx - 1 \quad -A$$

$$x^2 + x - c = cx - 1 \Rightarrow x^2 - (c-1)x - 1 = 0 \Rightarrow (-1)^2 - 2(-1) - 1 = -1 + 2 - 1 = 0$$

$$\Rightarrow (x+1)(2^2 - x - 1) \Rightarrow (x^2 - 2x - 1) = 0 \Rightarrow x = \frac{1+\sqrt{5}}{2} \Rightarrow \frac{1+\sqrt{5}}{2} + \frac{1-\sqrt{5}}{2} = \frac{2}{2} = 1$$

$$f(x) = x^2 + ax + b = y - 1 - 1 + b \Rightarrow b = -2$$

$$\text{B) } \underbrace{a+b=c}_{b=a} \underbrace{a=a-c}_{a=-c+1} b+1 \Rightarrow -c+1 = b \Rightarrow 1-cb \Rightarrow b = \frac{1}{c}$$

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

$$\frac{fx^2 - ax + c + 1}{bx + c} = x \Rightarrow \frac{fx^2 - ax + c + 1}{bx^2 + cx} = 1 \Rightarrow bax^2 = fx^2 \Rightarrow b = f$$

$$-a = c \Rightarrow a = -c$$

$$c+1 = 0 \Rightarrow c = -1$$

$$c - c - 1 = 0$$