

$$f(x) = \frac{x^2 + fx + a}{x^2 + fx + v}$$

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

$$f(x) = x^2 + ax + b$$

$$\begin{aligned} -b &= x \\ -1 - a + b &= -x \rightarrow b = x \\ -1 - a + x &= 0 \\ a &= -1 \end{aligned}$$

$$y = x^2 + 1$$

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

$$x^2 - 2x - 1 = 0$$

$$\begin{array}{r|l} x^2 - 2x - 1 & x+1 \\ -x^2 - 2x & \\ \hline 2x + 2x - 1 & \\ 2x + 2x & \\ \hline -1 & \end{array}$$

$$(x+1)(x^2 - x - 1) \Rightarrow \frac{3x-1}{2x-1} = \frac{-b}{a}$$

$$\Delta = b^2 - 4ac$$

$$\Delta = 1 + 4 = 5$$

$$x = \frac{-1 \pm \sqrt{5}}{2}$$

$$\frac{1+\sqrt{5}}{2} + \frac{1-\sqrt{5}}{2} = \frac{2}{2} = 1$$

$$f = \{(2, a+b), (1, a), (-1, a-2b+1)\}$$

$$f(x) = x^2 \quad a+b = 2a = a-2b+1$$

$$a+b = a-2b+1$$

$$\begin{aligned} 2b &= 1 \\ b &= \frac{1}{2} \end{aligned}$$

$$\begin{aligned} a+b &= 2a \\ b &= a \\ \frac{1}{2} &= a \end{aligned}$$

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$$f(n) = \frac{fn^2 - an + c}{bn + r}$$

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$$f(n) = n$$

از این عبارت  
با ضرب

$$\frac{fn^2 - an + c}{bn + r} = n$$

$$fn^2 - an + c = bn^2 + rn$$

بسط

$$\frac{fn^2 - an + c}{n} = kn + a$$

بسط

$$c = -1$$

$$fn - a = bn + r$$

$$\begin{aligned} b &= f \\ a &= r \\ c &= -1 \end{aligned}$$

رہر فتر

یسنار قرائنی تکلیف ۲۷

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الف)  $(9, x+2y), (2x-y, -4)$

$$\begin{cases} 2x - y = 9 \\ x + 2y = -4 \end{cases} \xrightarrow{\times 2} \begin{cases} 4x - 2y = 18 \\ x + 2y = -4 \end{cases}$$

$$\frac{3x}{3} = 14$$

$$x = 14$$

$$y = -3$$

$$\frac{x}{y} = \frac{14}{-3} = -\frac{14}{3}$$

ب)  $(-1, -3), (\frac{1}{x} - \frac{1}{y}, \frac{2}{x} - \frac{3}{y})$

$$\begin{cases} \frac{1}{x} - \frac{1}{y} = -1 \\ \frac{2}{x} - \frac{3}{y} = -2 \end{cases} \xrightarrow{\times 2} \begin{cases} \frac{2}{x} - \frac{2}{y} = -2 \\ \frac{2}{x} - \frac{3}{y} = -2 \end{cases}$$

$$\frac{2}{x} - \frac{2}{y} = -2 \rightarrow \frac{2}{x} = -2 + \frac{2}{y} \rightarrow \frac{1}{x} = -1 + \frac{1}{y}$$

$$\frac{2}{x} - \frac{3}{y} = -2$$

$$\begin{aligned} a &= -2 \\ a + 1 &= -2 \end{aligned}$$

f = { (a, a), (1, a+1), (1, -2), (2, b) }

$$f(a) + 2f(2) = 3f(1)$$

$$f(1) + 2f(2) = 3f(1)$$

$$-9 + 2b = -9 \rightarrow b = 0$$

تابع نیند

$$2, 4 \times 4, 4, 4$$

f = { (-1, m^2-3m), (3, 5), (-1, -2), (m+1, 4), (2, 4), (m^2+2, 4), (m+1, 4) }

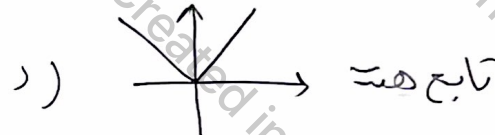
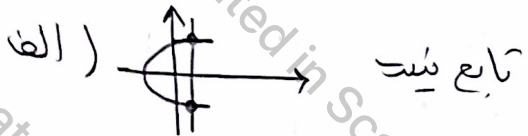
$$\begin{aligned} m^2 - 3m + 4 &= 0 \\ (m-2)(m-1) &= 0 \end{aligned}$$

$$m = 2 \Rightarrow x, m = 1 \Rightarrow x$$

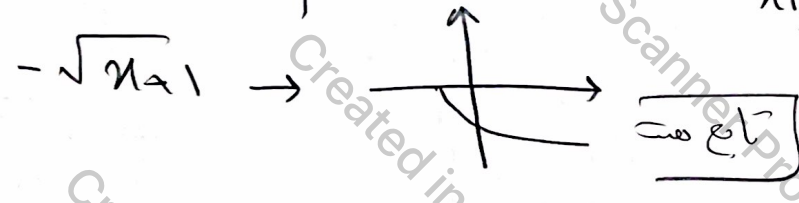
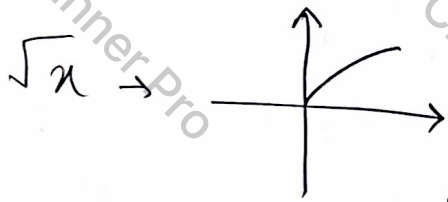
به ازای هیچ مقدار

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الف)  $y = -\sqrt{x+1} \Rightarrow y_1 = -\sqrt{x_1+1} \xrightarrow{\text{توانه}} y_1^2 = 4|x_1+1|$   
 $y_2 = -\sqrt{x_2+1} \rightarrow y_2^2 = 4|x_2+1|$



$x_1 = x_2 \rightarrow y_1^2 = y_2^2 \rightarrow y_1 = \pm y_2$

ب)  $x = \frac{y}{\sqrt{1-y^2}} \xrightarrow{\text{توانه}} y^2 = 1-y^2 \rightarrow y_1^2 = 1-y_2^2$   
 $y = \pm \frac{1}{\sqrt{2}}$   
 تابع نیست

الف)  $|y_1| = x_1 \rightarrow \begin{cases} |y_1| = x_1 \\ |y_2| = x_2 \end{cases} \xrightarrow{x_1 = x_2} |y_1| = |y_2|$   
 $y_1 = \pm y_2$  تابع نیست

ب)  $y^3 + 3y^2 + 3y + x^3 + x = 0$

$x=0 \rightarrow y^3 + 3y^2 + 3y = 0$

$y(y^2 + 3y + 3) = 0$

متر  $y^3 + 3y^2 + 3y = -x^3 - x - 3y^2$

$y=0$  تابع هست

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معادله سمت ب

$$x = \frac{y_1}{\sqrt{1-y_1^2}}$$

$$x = \frac{y_2}{\sqrt{1-y_2^2}}$$

$$\frac{y_1}{\sqrt{1-y_1^2}} = \frac{y_2}{\sqrt{1-y_2^2}} \rightarrow \frac{y_1^2}{1-y_1^2} = \frac{y_2^2}{1-y_2^2}$$

مخرجها  $\oplus$   
رابطه  $y_2$  هم  
عکس است

$$y_1^2 - y_1^2 y_2^2 = y_2^2 - y_1^2 y_2^2$$
$$y_1^2 = y_2^2 \rightarrow |y_1| = |y_2|$$

رابطه  $y_2$   
عکس است

$$y_1 = y_2$$