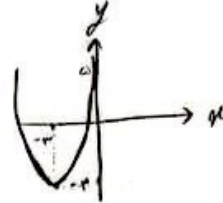


$$y = x^2 + 4x + 5$$

$$\text{مثلاً } \left| \begin{array}{l} -\frac{b}{2a} = -\frac{4}{2} = -2 = x \end{array} \right.$$

$$\left| \begin{array}{l} (-2)^2 + 4(-2) + 5 = -f = y \\ 4 - 8 + 5 \end{array} \right.$$

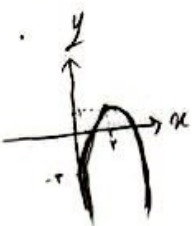


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$$y = -x^2 + 4x - 3$$

$$\text{مثلاً } \left| \begin{array}{l} -\frac{b}{2a} = -\frac{4}{-2} = 2 = x \end{array} \right. \checkmark$$

$$\left| \begin{array}{l} -2^2 + 4(2) - 3 = 1 = y \checkmark \\ -4 + 8 - 3 \end{array} \right.$$



در نقاط اد ۳ محور را قطع می کند. حاصل ؟

۱، ۲، ۳

$$\frac{ax^2 - bx + c}{a} = 0$$

$$1) \Delta = b^2 - 4ac > 0 \rightarrow 9 - 4a > 0 \rightarrow 9 > 4a \Rightarrow \frac{9}{4} > a$$

$$2) \Delta = 0 / \Delta = b^2 - 4ac \rightarrow \Delta = 9 - 4a = 0 \rightarrow 4a = 9 \Rightarrow a = \frac{9}{4}$$

$$3) \Delta < 0 \rightarrow \Delta = 9 - 4a < 0 \rightarrow 9 < 4a \Rightarrow \frac{9}{4} < a$$

$$4) \Delta = 0 \rightarrow \frac{9}{4} = a$$

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

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

$$x^2 - 2x + 1 = 1 + 1$$

$$(x - 1)^2 = 2$$

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

$$x = 1 \pm \sqrt{2}$$

$$2) x^2 - x - 1 = 0 \quad \left\{ \left(-\frac{1}{x} \right)^2 = \frac{1}{x^2} \right.$$

$$x^2 - x = 1$$

$$x^2 - x + \frac{1}{x^2} = 1 + \frac{1}{x^2}$$

$$\left(x - \frac{1}{x} \right)^2 = \frac{5}{x^2}$$

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

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

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$$\frac{x^2 - 2x - 1}{a} = 0$$

$$\Delta = b^2 - 4ac = (-2)^2 - 4(1)(-1) = 4 + 4 = 8$$

$$x = \frac{-b \pm \sqrt{\Delta}}{2a}$$

$$x = \frac{2 \pm \sqrt{8}}{2} = 1 \pm \sqrt{2}$$

$$x = \frac{2 \pm \sqrt{8}}{2}$$

$$x = \frac{2 - \sqrt{8}}{2} = 1 - \sqrt{2}$$

$$\frac{x^2 + x - 1}{a} = 0$$

$$\Delta = b^2 - 4ac = 1 - 4(1)(-1) = 1 + 4 = 5$$

$$x = \frac{-b \pm \sqrt{\Delta}}{2a}$$

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

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

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

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$$x^2 - 11x + 28 = 0$$

$$\frac{(x-7)(x-4)}{x=7 \quad x=4} = 0$$

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$$x^2 + 3x - 28 = 0$$

$$\frac{(x+7)(x-4)}{x=-7 \quad x=4}$$

$$x^2 - 12x + 20 = 0$$

$$x^2 - 12x + 20 = 0$$

$$\frac{(x-10)(x-2)}{x=10 \quad x=2}$$

$$x = \frac{10}{2} = 1$$

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

$$x^2 - 10x + 21 = 0$$

$$x^2 - 10x + 21 = 0$$

$$\frac{(x-7)(x-3)}{x=7 \quad x=3}$$

$$x = \frac{7}{3} = 1$$

$$x = \frac{3}{1} = 3$$

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$$1) x^2 - 5x + 6 = 0 \rightarrow x = 1$$

$$\rightarrow x = \frac{6}{1}$$

$$2) x^2 + 5x + 6 = 0 \rightarrow x = -1$$

$$\rightarrow x = -\frac{6}{1}$$

$$3) x^2 - 5x + 1 = 0$$

$$\Delta = b^2 - 4ac = 25 - 4(1 \times 1) = 21$$

$$x = \frac{5 \pm \sqrt{21}}{2}$$

$$4) x^2 + 5x + 9 = 0$$

$$\Delta = b^2 - 4ac = 25 - 4(9 \times 1) = 25 - 36 = -11 < 0 \rightarrow \text{no real roots}$$

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$$x^2 - 3x - 2 = 0$$

$$\Delta = 9 + 8 = 17 > 0$$

$$x = \frac{3 \pm \sqrt{17}}{2}$$

$$x_1 = \frac{3 + \sqrt{17}}{2}$$

$$x_2 = \frac{3 - \sqrt{17}}{2}$$

$$1) 5x^2 - 3x = 9 - x \left(\frac{-3}{5} \right) = 13$$

$$2) 5x^2 - 3x = 9 - x \left(\frac{3}{5} \right) = 9 - \frac{3x}{5} = 9 - 1.8 = 7.2$$

$$P = x_1 \times x_2 = \frac{3 + \sqrt{17}}{2} \times \frac{3 - \sqrt{17}}{2} = \frac{9 - 17}{4} = -2 = -\frac{2}{1} = -2$$

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$$\begin{pmatrix} 1 \\ 2 \end{pmatrix} + \begin{pmatrix} 3 \\ 4 \end{pmatrix} = \begin{pmatrix} 4 \\ 6 \end{pmatrix}$$

$$\frac{1! \times 2!}{1! \times 2!} = 1$$

$$\frac{3! \times 4!}{1! \times 2!} = 12$$

$$\begin{pmatrix} 1 \\ 2 \end{pmatrix} + \begin{pmatrix} 3 \\ 4 \end{pmatrix} = 12 + 12 = 24$$

$$\frac{1! \times 2!}{1! \times 2!} = 1$$

$$\frac{3! \times 4!}{1! \times 2!} = 12$$

1, 2, 3