

معادله: $(a+b)^2 = a^2 + b^2 + 2ab$

$$n^2 - 4n + 4 = 0 \Rightarrow n^2 - 4n + 4 = 1 \Rightarrow (n-2)^2 = 1$$

$$n^2 + 4n + 4 = 0 \Rightarrow n^2 + 4n + 4 = 9$$

$$(n+2)^2 = 9 \Rightarrow \begin{cases} n+2=3 \Rightarrow n=1 \\ n+2=-3 \Rightarrow n=-5 \end{cases}$$

$$\begin{cases} n-2=1 \Rightarrow n=3 \\ n-2=-1 \Rightarrow n=1 \end{cases}$$

$$n^2 - 6n + 9 = 0 \Rightarrow (n-3)(n-3) = 0 \Rightarrow \begin{cases} n=3 \\ n=3 \end{cases}$$

$$n^2 - 6n - 16 = 0 \Rightarrow (n-8)(n+2) = 0 \Rightarrow \begin{cases} n=8 \\ n=-2 \end{cases}$$

روش رادیکال: $\frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow \frac{b^2 - 4ac}{4a^2}$

$$n^2 - 3n - 4 = 0 \Rightarrow \frac{3 \pm \sqrt{9 - (-12)}}{2} = \frac{3 \pm \sqrt{21}}{2}$$

$$kn^2 - 6n + \frac{1}{k} = 0 \Rightarrow \frac{6 \pm \sqrt{36 - 4k}}{2k} = \frac{6 \pm \sqrt{12}}{k}$$

$$n^2 - 3n + 2 = 0 \Rightarrow (n-1)(n-2) = 0 \Rightarrow \begin{cases} n=1 \\ n=2 \end{cases}$$

معادله: $kn^2 + n - 3 = 0 \Rightarrow n^2 + n - 3k = 0$

$$\begin{aligned} \text{①} \xrightarrow{+k} n=3 & \Rightarrow (n+3)(n-3) = 0 \Rightarrow \begin{cases} n=3 \\ n=-3 \end{cases} \xrightarrow{+k} \text{②} \end{aligned}$$

$$2n^2 - 12n + 4 = 0 \xrightarrow{\text{تقسیم بر ۲}} n^2 - 6n + 2 = 0 \Rightarrow (n-3)(n-3) = 0 \Rightarrow \begin{cases} n=3 \\ n=3 \end{cases}$$

$$kn^2 - 12n + 4 = 0 \xrightarrow{\text{تقسیم بر ۲}} n^2 - 6n + 2 = 0 \Rightarrow (n-3)(n-3) = 0 \Rightarrow \begin{cases} n=3 \\ n=3 \end{cases}$$

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

الف)

$$a^2 - (4 \times (-3) \times (-1)) = 13$$

$$13 - (4 \times 2 \times 2) = -5$$

ب)

$$(-1)^2 - (4 \times 2 \times 2) = -15$$

$$(-1)^2 - (4 \times 2 \times 1) = -7$$

$$x^2 - 3x + a = 0 \quad \Delta = b^2 - 4ac$$

$$\Delta > 0 \Rightarrow b^2 - 4ac > 0 \Rightarrow 9 - 4a > 0 \Rightarrow \frac{9}{4} > a \quad \text{الف)}$$

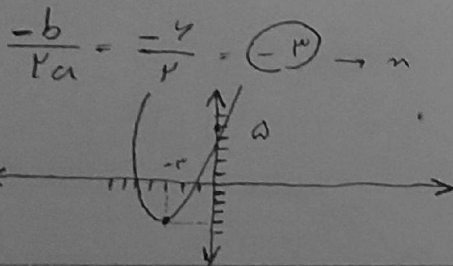
$$\Delta = 0 \Rightarrow b^2 - 4ac = 0 \Rightarrow 9 - 4a = 0 \Rightarrow a = \frac{9}{4} \quad \text{ب)}$$

$$\Delta < 0 \Rightarrow b^2 - 4ac < 0 \Rightarrow 9 - 4a < 0 \Rightarrow a < \frac{9}{4} \quad \text{ج)}$$

$$\Delta \geq 0 \Rightarrow b^2 - 4ac \geq 0 \Rightarrow 9 - 4a \geq 0 \Rightarrow \frac{9}{4} \geq a \quad \text{د)}$$

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

$$x^2 + 4x + a = 0$$



$$y = (-2)^2 + 4(-2) + a = -4$$

$$y = 0$$

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

$$x^2 - 4x + 3 = 0$$

$$\frac{-b}{2a} = \frac{-(-4)}{2 \times 1} = 2 \rightarrow x$$

$$y = -2^2 + 4 \times 2 - 3 = 1 \rightarrow y$$

$$0 = -x^2 + 4x - 3 \Rightarrow x^2 - 4x + 3 = 0 \Rightarrow (x-1)(x-3) = 0 \Rightarrow x=1 \rightarrow \boxed{x=1}$$

$$k = -\frac{b}{a} = -\frac{-4}{1} = 4$$

$$p = \frac{c}{a} = \frac{-3}{1} = -3$$

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

$$a = 1$$

$$b = -3$$

$$c = -2$$

$$5^2 - 3 \times 5 = 25 - 15 = 10$$

$$5^2 - 3 \times 5 \times (-2) = 25 + 30 = 55$$