

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

$$x^2 - 2ab + b^2 = (a-b)^2 \rightarrow (a-b)^2$$

$$x^2 + 12x + 17 = 0 \xrightarrow{+9} x^2 + 12x + 17 + 9 = 9$$

$$17 + 9 = 9$$

$$(x+6)^2 = 9 \rightarrow x+6 = \pm 3 \rightarrow x = -3 \text{ و } x = -9$$

$$x^2 - 5x + 6 = 0$$

$$\rightarrow -4, -1 \text{ و } 0 \Rightarrow (x-2)(x-3) = 0 \rightarrow x=2 \text{ و } x=3$$

$$x^2 - 5x - 14 = 0 \rightarrow -2, +7 \Rightarrow (x+2)(x-7) = 0 \rightarrow x=-2 \text{ و } x=7$$

$$x^2 - 4x - 5 = 0 \rightarrow x = \frac{b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-4 \pm \sqrt{16 + 20}}{2} = \frac{-4 \pm \sqrt{36}}{2} = \frac{-4 \pm 6}{2} \Rightarrow x=1 \text{ و } x=-5$$

$$x^2 - 5x + \frac{1}{4} = 0 \rightarrow x = \frac{5 \pm \sqrt{25 - 1}}{2} = \frac{5 \pm \sqrt{24}}{2} = \frac{5 \pm 2\sqrt{6}}{2} \Rightarrow x = \frac{5 + 2\sqrt{6}}{2} \text{ و } x = \frac{5 - 2\sqrt{6}}{2}$$

$$x^2 - 3x + 2 = 0 \rightarrow a+b+c=0 \rightarrow x=1 \text{ و } x=2$$

$$x^2 + x - 3 = 0 \rightarrow a+c=b \rightarrow x=-1 \text{ و } x=3$$

$$x^2 - 11x + 10 = 0 \quad x^2 - 11x + 10 = 0$$

$$(x-1)(x-10) \Rightarrow x=1 \text{ و } x=10$$

$$x^2 - 10x + 1 = 0$$

$$(x-1)(x-1) \Rightarrow x=1 \text{ و } x=1$$

$$x^2 + \omega x - 1 = 0 \quad x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-\omega \pm \sqrt{\omega^2 - 4}}{-2} = \frac{-\omega \pm \sqrt{13}}{-2}, \quad \frac{-\omega + \sqrt{13}}{-2}$$

$$x^2 = x + 2 = 0 \quad \frac{1 \pm \sqrt{1-4}}{1} \Rightarrow \text{حواض نبارد} \rightarrow \text{نبارد}$$

$$x^2 - 5x + 2 = 0 \quad \frac{5 \pm \sqrt{25-8}}{2} = 1 \rightarrow \text{حواض باردار}$$

$$x^2 - x + 1 = 0 \quad \frac{1 \pm \sqrt{1-4}}{1} \Rightarrow \text{حواض نبارد} \rightarrow \text{نبارد}$$

$$b - 4ac < 0 \rightarrow 9 - 12a < 0 \quad \Delta < 0 \quad \frac{9}{12} < \frac{12}{9} \rightarrow a > \frac{9}{12}$$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{3 \pm \sqrt{9 - 12a}}{2}$$

$$0 < \Delta < 1 \quad 9 - 12a > 0 \quad a > 12a \quad \frac{9}{12} > a$$

$$b - 4ac > 0 \rightarrow 9 - 12a > 0 \quad \Delta > 0 \quad a > 12a \rightarrow a < \frac{9}{12}$$

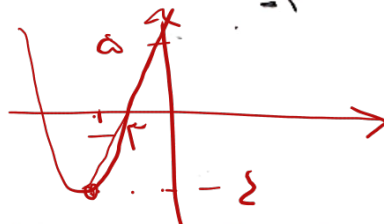
$$b - 4ac = 0 \rightarrow 9 - 12a = 0 \rightarrow 9 = 12a \quad a = \frac{9}{12}$$

$$y = x^2 + 4x + \omega \quad \frac{-b}{2a} = \text{دست} \quad \frac{-4}{2} = -2$$

Emot d
min

$$\frac{-4}{2} = -2 \rightarrow (-2)^2 + 4(-2) + \omega = -4 = y$$

$$x = 0 \rightarrow y = \omega$$

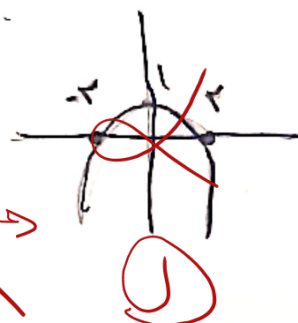


1, omega

$$y = -x^2 + 4x - 3 \quad y = -(x-2)^2 + 4(x-2) - 3 = 1 = y \quad x = \frac{-4}{-2} = 2$$

max

$$-x^2 + 4x - 3 = 0 \quad x = 1 \quad x = 3$$



1

$$S = \frac{-b}{a} \quad p = \frac{c}{a}$$

$$\left(\frac{-b}{a}\right)^2 = \left(\frac{c}{a}\right) \rightarrow 9 + 4 = 13 \quad \left(\frac{4}{1}\right)^2 = 16 \quad \frac{16}{1} = 16$$

$$x^2 - 4x - 1 = 0$$

$$\left(\frac{-b}{a}\right)^2 = \left(\frac{c}{a}\right) \Rightarrow \sqrt{4+16} = 4\omega$$

$$-4 = 16$$