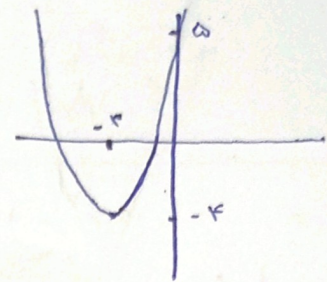


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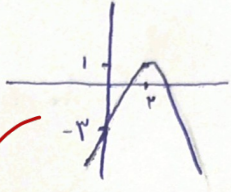
ext $\left| \begin{array}{l} -\frac{b}{2a} = -\frac{4}{2} = -2 \\ -4 \end{array} \right.$ Min

$y = x^2 + 4x + 5$
 $y = 9 - 18 + 5 = -4$



(الف)
 ۲

ext $\left| \begin{array}{l} -\frac{b}{2a} = -\frac{4}{-2} = 2 \\ 1 \end{array} \right.$ Max ✓



$y = -x^2 + 4x - 3 = -4 + 16 - 3 = 9$ ✓

$\frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-4 \pm \sqrt{16 - 12}}{-2} = 1 \text{ or } 3$ ✓

(الف)
 ۲

$\Delta > 0$	$\Delta = b^2 - 4ac = 9 - 4(2a) = 9 - 8a$	$9 - 8a > 0 \Rightarrow a < \frac{9}{8}$	(الف)
$\Delta = 0$	$\Delta = 9 - 8a$	$9 - 8a = 0 \Rightarrow a = \frac{9}{8}$	(ب)
$\Delta < 0$	$\Delta = 9 - 8a$	$9 - 8a < 0 \Rightarrow a > \frac{9}{8}$	(ج)
$\Delta \geq 0$	$\Delta = 9 - 8a$	$9 - 8a \geq 0 \Rightarrow a \leq \frac{9}{8}$	(د)

۳

(الف) $x^2 - 2x - 1 = 0 \Rightarrow (x - 1)^2 = 2 \Rightarrow x - 1 = \pm \sqrt{2} \Rightarrow x = 1 \pm \sqrt{2}$

(ب) $x^2 - x - 1 = 0 \Rightarrow (x - \frac{1}{2})^2 = \frac{5}{4} \Rightarrow x - \frac{1}{2} = \pm \sqrt{\frac{5}{4}} \Rightarrow x = \frac{1}{2} \pm \frac{\sqrt{5}}{2}$

$x^2 - x + \frac{1}{4} = 1 + \frac{1}{4}$

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$\Delta = b^2 - 4ac$			
(الف) $x^2 - 2x - 1 = 0$	$\Delta = 4 + 4 = 8$	$\frac{-b \pm \sqrt{\Delta}}{2a} = \frac{2 \pm \sqrt{8}}{2}$	(۲)
(ب) $x^2 + x - 4 = 0$	$\Delta = 1 + 16 = 17$	$\frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-1 \pm \sqrt{17}}{2}$	

$$a) x^2 - 11x + 18 = 0$$

$$(x-4)(x-5) = 0$$

$$\frac{x=4}{x=5}$$

5

$$b) x^2 + 3x - 18$$

$$(x+6)(x-3) = 0$$

$$\frac{x=3}{x=-6}$$

$$a) \omega x^2 - 12x + 5 = 0$$

$$x^2 - 12x + 5 = 0 \quad (x-5)(x-1) = 0$$

$$x = \frac{5}{\omega} \quad x = \frac{1}{\omega}$$

5

$$b) 3x^2 - 10x + 5 = 0$$

$$x^2 - 10x + 5 = 0 \quad (x-5)(x-1) = 0$$

$$x = \frac{5}{3} \quad x = \frac{1}{3}$$

$$a) 2x^2 - \omega x + 3 = 0$$

$$2x^2 - \omega x + 3 = 0$$

$$x = 1 \quad x = \frac{3}{2}$$

$$x = \frac{3}{2} = \frac{c}{a}$$

5

$$b) 2x^2 + \omega x + 3 = 0$$

$$x + 3 = \omega$$

$$x = -1 \quad x = -\frac{3}{2}$$

$$x = -\frac{3}{2} = -\frac{c}{a}$$

$$c) 2x^2 - \omega x + 1 = 0$$

$$\Delta = b^2 - 4ac = \omega^2 - 4 = 16$$

$$x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{\omega \pm 4}{2}$$

$$d) 5x^2 + 12x + 9 = 0$$

$$\Delta = b^2 - 4ac = 144 - 180 = -36$$

$$\Delta < 0 \quad \text{ریشه ها ندارد}$$

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

$$S = \frac{-b}{a} = \frac{3}{1} = 3$$

$$P = \frac{c}{a} = \frac{-4}{1} = -4$$

$$a) S^2 - 4P = 9 - 4(-4) = 9 + 16 = 25$$

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$$b) S^2 - 4SP = 9 - 4 \times 3 \times (-4) = 9 + 48 = 57$$

$$a) \begin{pmatrix} 5 \\ \omega \end{pmatrix} + \begin{pmatrix} 9 \\ 3 \end{pmatrix} = \frac{5 \times 9 + \omega \times 3}{1 \times 9 + \omega \times 3} = 21$$

$$\frac{9 \times 9}{1 \times 9} = 9$$

$$21 + 3\omega = 9$$

$$b) \begin{pmatrix} 9 \\ 3 \end{pmatrix} - \begin{pmatrix} 5 \\ \omega \end{pmatrix} = \frac{9 \times 5 - 3 \times \omega}{3 \times 5 - \omega \times 3} = 19 - 21 = -2$$

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