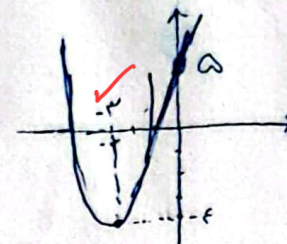
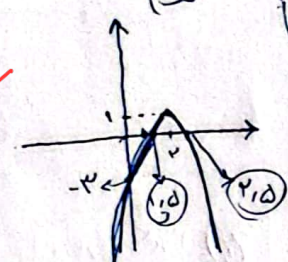


الف) $y = x^2 + 2x + 5$ $a > 1$: min min $\left\{ \begin{array}{l} -\frac{b}{2a} = -\frac{2}{2} = -1 \\ -\frac{\Delta}{4a} = -\frac{16}{4} = -4 \end{array} \right\}$ $\left(\begin{array}{c} -1 \\ -4 \end{array} \right)$ ✓ $\Delta = b^2 - 4ac : 4 - 20 = -16$	ب)  ۲	۱
$y = x^2 + 2x - 3$ $y = -x^2 + 2x - 3 \rightarrow a < 1$: max max $\left\{ \begin{array}{l} -\frac{b}{2a} = -\frac{2}{-2} = 1 \\ -\frac{\Delta}{4a} = -\frac{16}{-4} = 4 \end{array} \right\}$ $\left(\begin{array}{c} 1 \\ 4 \end{array} \right)$ ✓ $\Delta = b^2 - 4ac$ $\rightarrow 4 - 16 = -12$	ب) در نقاط $(1, 5)$ و $(-1, -3)$ محور x ها  $-x^2 + 2x - 3 < 0$ $x = 1$ ← چو ضرایب صفر است $x = \frac{c}{a} = \frac{-3}{-1} = 3$	۲
الف) $b^2 - 4ac > 0 \Rightarrow a < \frac{4}{\Delta}$ $\rightarrow 9 - 4a > 0 \Rightarrow a < \frac{9}{4}$ ✓	ب) $b^2 - 4ac < 0 \Rightarrow a > \frac{4}{\Delta}$ $\rightarrow 9 - 4a < 0 \Rightarrow a > \frac{9}{4}$ ✓	۳
الف) $x^2 - 2x - 1 = 0 \Rightarrow x^2 - 2x + 1 = 2$ $(x-1)^2 = 2 \Rightarrow x-1 = \pm\sqrt{2}$ $\rightarrow x = \pm\sqrt{2} + 1$ ✓	ب) $x^2 - x - 1 = 0 \Rightarrow x^2 - x + \frac{1}{4} = \frac{5}{4}$ $(x - \frac{1}{2})^2 = \frac{5}{4} \Rightarrow x - \frac{1}{2} = \pm\sqrt{\frac{5}{4}}$ $\rightarrow x = \pm\sqrt{\frac{5}{4}} + \frac{1}{2}$ ✓	۴
الف) $x^2 - 2x - 1 = 0$ $\Delta = 4 + 4 = 8 \Rightarrow \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{2 \pm \sqrt{8}}{2} = \frac{2 \pm 2\sqrt{2}}{2} = 1 \pm \sqrt{2} = x$ ✓ ب) $x^2 + x - 4 = 0$ $\Delta = 1 + 16 = 17 \Rightarrow \frac{-1 \pm \sqrt{17}}{2}$ ✓	۵	

$$\text{الف) } x^2 - 11x + 28 = 0$$

$$(x-7)(x-4) = 0 \Rightarrow x = \begin{matrix} 7 \\ 4 \end{matrix} \checkmark$$

2

$$\text{ب) } x^2 + 3x - 28 = 0$$

$$(x+7)(x-4) = 0 \Rightarrow x = \begin{matrix} -7 \\ 4 \end{matrix} \checkmark$$

9

$$\text{الف) } \omega x^2 - 12x + 5 = 0 \Rightarrow x^2 - 12x + 5\omega = 0$$

$$(x-5)(x-\omega) = 0 \Rightarrow x = \begin{matrix} 5 \\ \omega \end{matrix} \checkmark$$

2

7

$$\text{ب) } 3x^2 - 10x + 5 = 0 \Rightarrow x^2 - 10x + 21 = 0$$

$$(x-7)(x-3) = 0 \Rightarrow x = \begin{matrix} 7 \\ 3 \end{matrix} \checkmark$$

$$\text{الف) } x^2 - 5x + 6 = 0 \Rightarrow x = \begin{matrix} 1 \\ 6 \end{matrix} \checkmark$$

(دو ضلع)

$$\text{ج) } x^2 - 5x + 1 = 0 \Rightarrow \Delta = 25 - 4 = 21$$

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

2

1

$$\text{ب) } x^2 + 5x + 6 = 0 \Rightarrow x = \begin{matrix} -1 \\ -6 \end{matrix} \checkmark$$

(دو ضلع)

$$\text{د) } x^2 + 7x + 9 = 0$$

$$\Delta = 49 - 36 = 13$$

$$x = \frac{-7 \pm \sqrt{13}}{2} \checkmark$$

بدون اسی صفت جواب نادر

$$\text{الف) } S^2 - 2R = ? \Rightarrow (-\frac{b}{a})^2 - 2(\frac{c}{a})$$

$$(\frac{3}{1})^2 - 2(-\frac{2}{1}) = 9 + 4 = 13 \checkmark$$

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

1, 2

9

$$\text{ب) } S^3 - 3SP = (-\frac{b}{a})^3 - 3(-\frac{b}{a})(\frac{c}{a})$$

$$(\frac{3}{1})^3 - 3(3)(-2) = 27 + 18 = 45 \checkmark$$

$$\text{الف) } \begin{pmatrix} 7 \\ 5 \end{pmatrix} + \begin{pmatrix} 9 \\ 2 \end{pmatrix} = \frac{7 \times 9 + 5 \times 2}{7 \times 2} + \frac{9 \times 1}{2 \times 1} = \frac{72 + 10}{2} = \frac{82}{2} = 41 \checkmark$$

$$\text{ب) } \begin{pmatrix} 9 \\ 2 \end{pmatrix} - \begin{pmatrix} 7 \\ 5 \end{pmatrix} = \frac{9 \times 7 - 2 \times 5}{9 \times 2} = \frac{63 - 10}{18} = \frac{53}{18}$$

$$\hookrightarrow V(18 \times 53) = 954 \checkmark$$

2

1