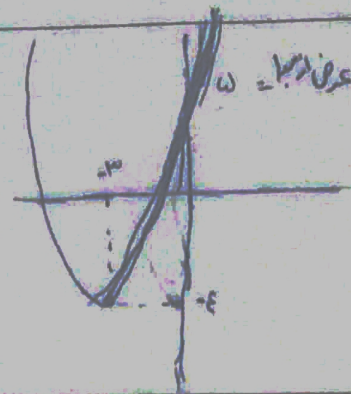


$$\text{است} \rightarrow a > 0 \rightarrow \min \begin{cases} x = \frac{-b}{2a} = \frac{-6}{2} = -3 \\ y = \frac{-\Delta}{4a} = \frac{-16}{4} = -4 \end{cases}$$

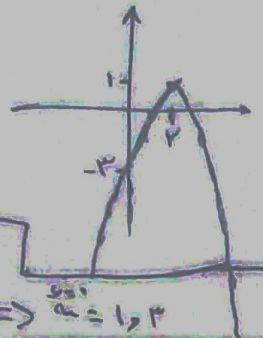
$$\Delta = 36 - 20 = 16$$

الف) نوع رسم: منبسط
 $\Delta = 16 \rightarrow 4$ محقق



ب) ۱

$$\text{است} \rightarrow \begin{cases} x = \frac{-b}{2a} = \frac{-6}{2} = -3 \\ y = \frac{-\Delta}{4a} = \frac{-16}{4} = -4 \end{cases}$$



الف) ۲



$$y = 0 \rightarrow x^2 - 2x - 1 = 0 \Rightarrow x = 1 \pm \sqrt{2}$$

الف) (الف) $\Delta = b^2 - 4ac = 4 - 4(-1) = 8 > 0$ دو جواب متمایز
 $\Delta = 8 > 0 \rightarrow b^2 - 4ac > 0 \rightarrow 4 - 4(-1) > 0 \rightarrow 8 > 0$

ب) $\Delta = 0 \rightarrow b^2 - 4ac = 0 \rightarrow 4 - 4(-1) = 8 \neq 0 \rightarrow \Delta \neq 0$

ج) $\Delta < 0 \rightarrow b^2 - 4ac < 0 \rightarrow 4 - 4(-1) < 0 \rightarrow 8 < 0$ محقق نیست

د) $\Delta \geq 0 \rightarrow b^2 - 4ac \geq 0 \rightarrow 4 - 4(-1) \geq 0 \rightarrow 8 \geq 0$ محقق

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

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

ج) ۳

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

ب) $x^2 + x - 6$
 $\Delta = 1 + 24 = 25$
 $x = \frac{-1 \pm \sqrt{25}}{2} = \frac{-1 \pm 5}{2}$

ج) ۳

الف) $x^2 - 11x + 28 = 0$
 $(x-4)(x-7) = 0$
 $x = 4, 7$

ب) $x^2 + 3x - 28 = 0$
 $(x+7)(x-4) = 0$
 $x = -7, 4$

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الف) $5x^2 - 12x + 7 = 0$
 $5x^2 - 12x + 7 = 0$
 $(5x-7)(x-1) = 0$
 $x = \frac{7}{5}, 1$
 $x = \frac{7}{5}, 1$

ب) $3x^2 - 10x + 7 = 0$
 $3x^2 - 10x + 7 = 0$
 $(3x-7)(x-1) = 0$
 $x = \frac{7}{3}, 1$

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الف) $2x^2 - 5x + 3 = 0$
 $a+b+c = 0$
 $2+3-5 = 0$
 $x = 1, \frac{3}{2}$
 ب) $2x^2 + 5x + 3 = 0$
 $a+b+c = 0$
 $2+3+5 = 10 \neq 0$
 $x = -1, -\frac{3}{2}$

ب) $2x^2 - 5x + 1 = 0$
 $\Delta = b^2 - 4ac = 25 - 4 = 21$
 $x = \frac{5 \pm \sqrt{21}}{4}$

ج) $3x^2 + 7x + 2 = 0$
 $\Delta = b^2 - 4ac = 49 - 24 = 25$
 $\Delta < 0 \rightarrow$ لا يوجد حقيقي

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الف) $x^2 - 2 = 0$
 $x = \pm \sqrt{2}$
 ب) $x^2 - 2 = 0$
 $x = \pm \sqrt{2}$

الف) $S^2 - 2P = 3^2 - 2(-2) = 9 + 4 = 13$
 ب) $S^2 - 2SP = 3^2 - 2(-2)(3) = 9 + 12 = 21$

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الف) $\begin{pmatrix} 0 \\ 0 \end{pmatrix} + \begin{pmatrix} 9 \\ 2 \end{pmatrix} = \begin{pmatrix} 9 \\ 2 \end{pmatrix}$
 $\begin{pmatrix} 0 \\ 0 \end{pmatrix} = \frac{0 \times 9}{9} = 0$
 $\begin{pmatrix} 9 \\ 2 \end{pmatrix} = \frac{9 \times 9}{9} = 9$

ب) $\begin{pmatrix} 9 \\ 2 \end{pmatrix} - \begin{pmatrix} 1 \\ 2 \end{pmatrix} = \begin{pmatrix} 8 \\ 0 \end{pmatrix}$
 $\begin{pmatrix} 9 \\ 2 \end{pmatrix} = \frac{9 \times 9}{9} = 9$
 $\begin{pmatrix} 1 \\ 2 \end{pmatrix} = \frac{1 \times 9}{9} = 1$

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