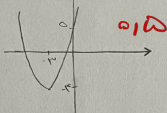


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نام و نام خانوادگی: شماره تکلیف شماره: کلاس: پاسخنامه تشریحی

$$y = x^2 + 4x + 5 \rightarrow \frac{-b}{2a} = \frac{-4}{2} = -2$$

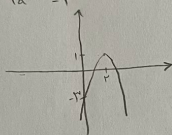
$$\min \begin{vmatrix} -3 \\ -5 \end{vmatrix} \rightarrow \text{حل؟}$$



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$$y = -x^2 + 4x - 3 \rightarrow \frac{-b}{2a} = \frac{-4}{-2} = 2$$

$$\max \begin{vmatrix} 2 \\ 1 \end{vmatrix}$$



$$\Delta = 16 - 12 = 4$$

$$x = \frac{4 \pm 2}{2} \rightarrow x_1 = 3, x_2 = 1$$

تابع همواره در نقاط 1 و 3 قطع می‌کند

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$$\Delta = 9 - 18 \rightarrow \Delta > 0 \rightarrow 9 - 18 > 0 \rightarrow 18 < 9 \rightarrow a < \frac{9}{\lambda}$$

الف) شرط $\Delta > 0$

$$9 - 18 = 0 \rightarrow a = \frac{9}{\lambda}$$

ب) $\Delta = 0$

$$9 - 18 < 0 \rightarrow a > \frac{9}{\lambda}$$

ج) $\Delta < 0$

$$9 - 18 \geq 0 \rightarrow a \leq \frac{9}{\lambda}$$

د) $\Delta \geq 0$

$$\text{الف) } x^2 - 2x - 1 = 0 \rightarrow x^2 - 2x + 1 = 2 \rightarrow (x-1)^2 = 2 \rightarrow x-1 = \pm\sqrt{2} \begin{cases} x_1 = 1 + \sqrt{2} \\ x_2 = 1 - \sqrt{2} \end{cases}$$

$$\begin{cases} x_1 = \frac{1 + \sqrt{5}}{2} \\ x_2 = \frac{1 - \sqrt{5}}{2} \end{cases}$$

$$\text{ب) } x^2 - x - 1 = 0 \rightarrow x^2 - x + 1 = 1 \rightarrow x^2 - x + \left(\frac{1}{4}\right)^2 = 1 + \left(-\frac{1}{4}\right)^2 \rightarrow \left(x - \frac{1}{4}\right)^2 = \frac{17}{16} \rightarrow x - \frac{1}{4} = \pm\sqrt{\frac{17}{16}}$$

$$\text{الف) } x^2 - 2x - 1 = 0 \rightarrow (-2)^2 + 4 = 1 \rightarrow x = \frac{2 \pm \sqrt{17}}{2} = \frac{2 \pm \sqrt{17}}{2}, x_1 = 1 + \sqrt{17}, x_2 = 1 - \sqrt{17}$$

$$\text{ب) } x^2 + x - 5 = 0 \rightarrow 1 + 16 = 17 \rightarrow x = \frac{-1 \pm \sqrt{17}}{2} = x_1 = \frac{-1 + \sqrt{17}}{2}, x_2 = \frac{-1 - \sqrt{17}}{2}$$

$$\text{الف) } x^2 - 11x + 28 = 0 \rightarrow (x - 4)(x - 7) \rightarrow x = 4, 7$$

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$$\text{ب) } x^2 + 3x - 28 = 0 \rightarrow (x + 7)(x - 4) \rightarrow x = -7, 4$$

$$\text{الف) } 5x^2 - 12x + 7 = 0 \rightarrow x^2 - 12x + 35 \rightarrow (x - 5)(x - 7) = \begin{cases} x_1 = \frac{5}{5} = 1 \\ x_2 = \frac{7}{5} \end{cases}$$

$$\text{ب) } 3x^2 - 10x + 7 = 0 \rightarrow x^2 - 10x + 21 \rightarrow (x - 3)(x - 7) = \begin{cases} x_1 = \frac{3}{3} = 1 \\ x_2 = \frac{7}{3} \end{cases}$$

$$2x^2 - 5x + 3 = 0 \rightarrow 2x^2 - 2x - 3 = 0 \rightarrow x = \frac{2 \pm 1}{2} = x_1 = \frac{3}{2}, x_2 = 1$$

$$2x^2 + 5x + 3 = 0 \rightarrow 2x^2 - 2x - 3 = 0 \rightarrow x = \frac{-5 \pm 1}{2} \rightarrow x_1 = -\frac{3}{2}, x_2 = -1$$

$$2x^2 - 5x + 1 = 0 \rightarrow 2x^2 - 8x + 9 = 0 \rightarrow x = \frac{5 \pm \sqrt{17}}{2} = x_1 = \frac{5 + \sqrt{17}}{2}, x_2 = \frac{5 - \sqrt{17}}{2}$$

$$x^2 + 7x + 9 = 0 \rightarrow 49 - 14x - 9 = 0 \rightarrow \Delta < 0 \rightarrow \text{لا يوجد حلا حقيقي}$$

$$x^2 - 3x - 2 = 0 \quad S = -\frac{b}{a} = 3 \quad P = -2$$

$$S^2 - 2P = 3^2 - 2(-2) = 9 + 4 = 13$$

$$S^2 - 3SP = 3^2 - 3(3)(-2) = 9 + 18 = 27$$

$$\text{الف) } \binom{5}{2} + \binom{9}{2} = \frac{5 \times 4 \times 3!}{2! \times 3!} + \frac{9 \times 8 \times 7!}{2! \times 7!} = \frac{5 \times 2}{2} + \frac{9 \times 2}{2} = 21 + 36 = 57$$

$$\text{ب) } \binom{9}{3} - \binom{1}{2} = \frac{9 \times 8 \times 7 \times 6!}{3! \times 6!} - \frac{1 \times 0 \times 9!}{2! \times 9!} = 12 - 0 = 12$$

$$\frac{12 \times 4}{4} = 12 \quad \frac{0 \times 9}{2} = 0$$