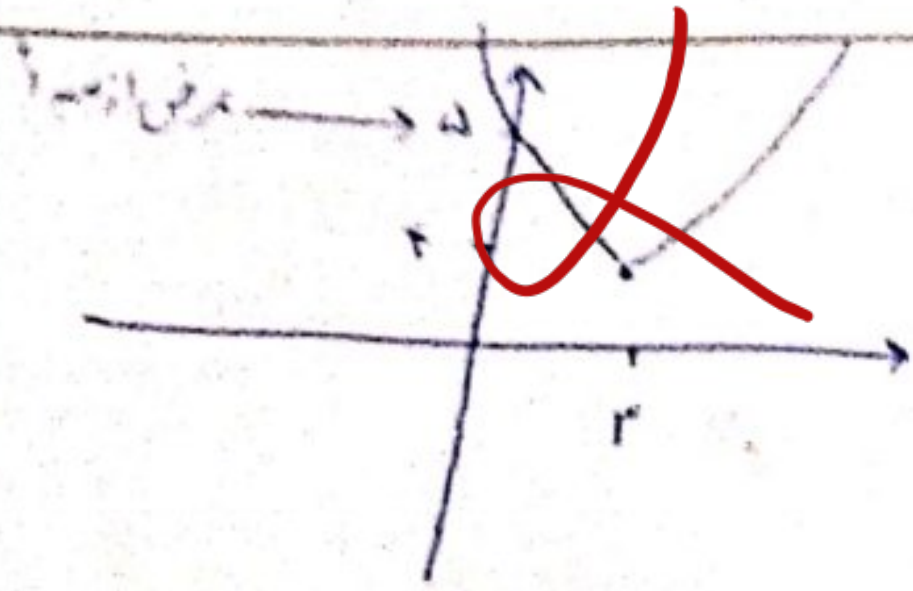


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نام و نام خانوادگی: ... تاریخ: ... پاسخنامه تشریحی تکلیف شماره ... کلاس: ... A جمع وختان:

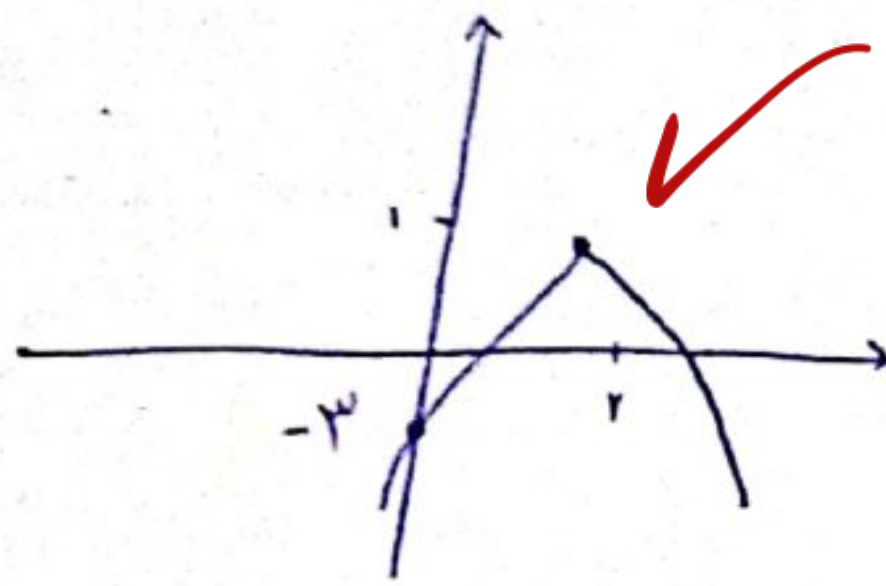


(ب)

$$(min) ext \left| \begin{array}{l} \frac{b}{2a} = \frac{-4}{2} = -2 \\ \Delta = 9 - 16 = -7 \end{array} \right| \begin{array}{l} -2 \\ -7 \end{array}$$

برای معادله $x^2 + 4x + 8 = 0$ بجای $x = -2$ می گذاریم

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(ب)

$$(max) ext \left| \begin{array}{l} \frac{b}{2a} = \frac{-4}{-2} = 2 \\ \Delta = 9 - 16 = -7 \end{array} \right| \begin{array}{l} 2 \\ -7 \end{array}$$

برای معادله $x^2 + 4x + 8 = 0$ بجای $x = 2$ می گذاریم

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ریشه ها؟

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

$$\Delta = 9 - (4 \times 2 \times a) = 9 - 8a > 0 \quad \boxed{a < \frac{9}{8}}$$

(الف) $\Delta > 0$

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

$$\Delta = 9 - (4 \times 2 \times a) = 9 - 8a = 0 \quad 8a = 9 \quad \boxed{a = \frac{9}{8}}$$

(ب) $\Delta = 0$

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

$$\Delta = 9 - (4 \times 2 \times a) = 9 - 8a < 0 \quad \boxed{a > \frac{9}{8}}$$

(ج) $\Delta < 0$

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

$$\Delta = 9 - (4 \times 2 \times a) = 9 - 8a \geq 0 \quad \boxed{\frac{9}{8} \geq a}$$

(د) $\Delta \geq 0$

$$x^2 - 2x - 1 = 0 \quad \textcircled{1} x^2 - 2x = 1 \quad \textcircled{2} x^2 - 2x + 1 = 1 + 1 \quad \textcircled{3} (x-1)^2 = 2$$

$$\textcircled{4} x-1 = \pm\sqrt{2} \quad \textcircled{5} x = 1 \pm \sqrt{2}$$

(الف)

$$x^2 - x - 1 = 0 \quad \textcircled{1} x^2 - x + \frac{1}{4} = 1 + \frac{1}{4} \quad \textcircled{2} x^2 - x + \frac{1}{4} = \frac{5}{4} \quad \textcircled{3} (x - \frac{1}{2})^2 = \frac{5}{4}$$

$$\textcircled{4} x - \frac{1}{2} = \pm \frac{\sqrt{5}}{2} \quad \textcircled{5} x = \frac{1}{2} \pm \frac{\sqrt{5}}{2} \quad \text{یا} \quad x = \frac{1 \pm \sqrt{5}}{2}$$

(ب)

$$x^2 - 2x - 1 = 0 \quad \textcircled{1} \Delta = b^2 - 4ac$$

$$\Delta = 4 - (4 \times 1 \times -1) = 8$$

$$\textcircled{2} x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{2 \pm \sqrt{8}}{2} = \frac{2 \pm 2\sqrt{2}}{2}$$

$$\textcircled{3} x = 1 \pm \sqrt{2}$$

$$\textcircled{2} x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \Rightarrow \frac{2 \pm \sqrt{8}}{2} = \frac{2 \pm 2\sqrt{2}}{2}$$

$$x^2 + x - 4 = 0 \quad \textcircled{1} \Delta = b^2 - 4ac$$

$$\Delta = 1 - (4 \times 1 \times -4) = 17$$

$$\textcircled{2} x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-1 \pm \sqrt{17}}{2}$$

$$\textcircled{2} x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} = \frac{-1 \pm \sqrt{17}}{2}$$

$$x^2 - 11x + 28 = 0$$

$$(x-4)(x-7) = 0$$

$$\boxed{x=4} \quad \boxed{x=7}$$

$$x^2 + 3x - 28 = 0$$

$$(x-4)(x+7) = 0$$

$$\boxed{x=4} \quad \boxed{x=-7}$$

$$2x^2 - 12x + 5 = 0 \quad \textcircled{1} \quad x^2 - 6x + \frac{5}{2} = 0 \rightarrow (x-1)(x-\frac{5}{2}) = 0$$

$$\boxed{x=1} \quad \boxed{x=\frac{5}{2}}$$

$$3x^2 - 10x + 4 = 0 \quad x^2 - \frac{10}{3}x + \frac{4}{3} = (x-2)(x-\frac{2}{3}) = 0$$

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

$$2x^2 - 5x + 2 = 0 \quad \text{مجموع ضرایب} = 2+5-2=5 \neq 0 \quad \frac{c}{a} = \frac{2}{2} = 1 \Rightarrow \frac{b}{a} = \frac{5}{2}$$

$$2x^2 + 5x + 2 = 0 \Rightarrow x^2 + \frac{5}{2}x + 1 = 0 \quad (x+2)(x+\frac{1}{2}) = 0$$

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

$$2x^2 - 5x + 1 = 0 \Rightarrow \Delta = b^2 - 4ac = 25 - (4 \times 2 \times 1) = 17$$

$$x = \frac{5 \pm \sqrt{17}}{4}$$

$$4x^2 + 7x + 9 = 0 \rightarrow \Delta = b^2 - 4ac = 49 - (4 \times 4 \times 9) = -95$$

ریشه حقیقی ندارد $\Delta < 0$

$$x^2 - 3x - 2 = 0 \quad \textcircled{1} \quad \Delta = b^2 - 4ac = 9 - (4 \times 1 \times -2) = 17$$

$$\textcircled{2} \quad x = \frac{3 \pm \sqrt{17}}{2}$$

$$\textcircled{3} \quad \text{جمع ریشه ها} \rightarrow \frac{3+\sqrt{17}}{2} + \frac{3-\sqrt{17}}{2} = 3$$

$$\textcircled{4} \quad \text{اصل ضرب ریشه ها} \rightarrow \left(\frac{3+\sqrt{17}}{2}\right) \left(\frac{3-\sqrt{17}}{2}\right) = \frac{9-17}{4} = \frac{-8}{4} = -2 = \frac{c}{a} = -2$$

$$\text{الف) } S^2 - 2P = 3^2 - 2(2) = 9 - 4 = 5$$

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

$$\text{ب) } S^2 - 3SP = (3^2) - 3(3 \times 2) = 9 - 18 = -9$$

$$\text{الف) } \left(\frac{7}{2}\right) + \left(\frac{9}{2}\right) = \frac{7!}{2! \times 5!} + \frac{9!}{2! \times 7!} = \frac{7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{2 \times 5 \times 4 \times 3 \times 2 \times 1} + \frac{9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{2 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}$$

$$\frac{7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{2 \times 5 \times 4 \times 3 \times 2 \times 1} + \frac{9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{2 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1} = 14 + 21 = 35$$

$$\text{ب) } \left(\frac{9}{3}\right) - \left(\frac{1}{2}\right) = \frac{9!}{3! \times 6!} - \frac{1!}{2! \times 1!} = \frac{9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{3 \times 2 \times 1 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1} - \frac{1 \times 1}{2 \times 1 \times 1}$$

$$\frac{9 \times 8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{3 \times 2 \times 1 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1} - \frac{1}{2} = 24 - \frac{1}{2} = 23.5$$