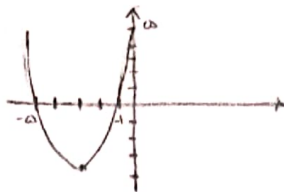


نام و نام خانوادگی
 پاسخنامه تشریحی تکلیف شماره کلاس
 A

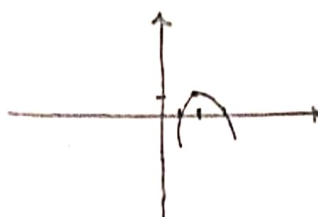
الف) $y = x^2 + 4x + 5 \rightarrow \min \text{ ext} \mid x = -\frac{b}{2a} = -\frac{4}{2} = -2 \quad \left[-\frac{3}{2} \right]$
 $y = 9 - 16 + 5 = -2$

ب) $y = 0 \rightarrow x^2 + 4x + 5 = 0$
 $(x+1)(x+5) = 0$
 $x = -1$
 $x = -5$
 $x = 0 \rightarrow y = 5$



الف) $y = -x^2 + 6x - 3 \rightarrow \max \text{ ext} \mid x = -\frac{b}{2a} = \frac{6}{-2} = -3 \quad \left[\frac{3}{2} \right]$
 $y = -9 + 18 - 3 = 6$

ب) $y = 0 \rightarrow -x^2 + 6x - 3 = 0$
 $-(x^2 - 6x + 3) = 0$
 $-(x-1)(x-3) = 0$
 $(1-x)(x-3) = 0$
 $x = 1$
 $x = 3$



ب) $\left[\frac{1}{2} \right], \left[\frac{3}{2} \right]$

الف) $\Delta = b^2 - 4ac = 9 - 16a > 0 \rightarrow 9 > 16a \rightarrow \frac{9}{16} > a$

ب) $9 - 16a = 0 \rightarrow 9 = 16a \rightarrow \frac{9}{16} = a$

ج) $9 - 16a < 0 \rightarrow 9 < 16a \rightarrow \frac{9}{16} < a$

د) $9 - 16a \geq 0 \rightarrow 9 \geq 16a \rightarrow \frac{9}{16} \geq a$

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

ب) $x^2 - x - 1 = 0 \rightarrow x^2 - x + \frac{1}{4} = \frac{5}{4}$

$\left(x - \frac{1}{2}\right)^2 = \frac{5}{4}$

$x - \frac{1}{2} = \pm \frac{\sqrt{5}}{2} \rightarrow x = \frac{1}{2} \pm \frac{\sqrt{5}}{2}$

الف) $x^2 - 2x - 1 = 0$

$\Delta = b^2 - 4ac = 4 + 4 = 8$ د جواب
 $x = \frac{2 \pm \sqrt{8}}{2} = \frac{2 \pm 2\sqrt{2}}{2} = 1 \pm \sqrt{2}$

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

$x = \frac{2 + 2\sqrt{2}}{2} = 1 + \sqrt{2}$, $x = \frac{2 - 2\sqrt{2}}{2} = 1 - \sqrt{2}$

ب) $x^2 + x - 4 = 0$

$\Delta = b^2 - 4ac = 1 + 16 = 17$ د جواب

$x = \frac{-1 + \sqrt{17}}{2}$, $x = \frac{-1 - \sqrt{17}}{2}$

$$الف) x^2 - 11x + 28 = 0$$

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

$$x=4, x=7$$

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$$ب) x^2 + 3x - 28 = 0$$

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

$$x=4, x=-7$$

$$الف) 5x^2 - 12x + 7 = 0 \rightarrow x^2 - 12x + 35 = 0$$

$$(x-7)(x-5) = 0$$

$$x=7, x=5$$

7

$$ب) 3x^2 - 10x + 7 = 0 \rightarrow x^2 - 10x + 21 = 0$$

$$(x-3)(x-7) = 0$$

$$x=3, x=7$$

$$الف) 2x^2 - 5x + 2 = 0 \xrightarrow{\text{درستی}} x^2 - 5x + 4 = 0$$

$$(x-4)(x+1) = 0$$

$$x=4, x=-1$$

$$ج) 2x^2 - 5x + 1 = 0$$

$$\Delta = b^2 - 4ac = 25 - 4 = 21$$

$$x = \frac{5 + \sqrt{21}}{4}, x = \frac{5 - \sqrt{21}}{4}$$

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$$ب) 2x^2 + 5x + 2 = 0 \xrightarrow{\text{درستی}} x^2 + 5x + 4 = 0$$

$$(x+2)(x+3) = 0$$

$$x=-2, x=-3$$

$$د) 4x^2 + 7x + 9 = 0$$

$$\Delta = b^2 - 4ac = 49 - 144 = -95$$

حواص نارد چون كوچكتر از صفر شد

$$P = \text{ضرب ریشه} = \frac{c}{a} = \frac{-2}{1} = -2 \quad x^2 - 3x - 2 = 0$$

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

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

$$ب) S^3 - 3SP = 3^3 - 3(3)(-2) = 27 + 18 = 45$$

9

$$الف) \binom{9}{5} \binom{4}{2} = \frac{9 \times 8 \times 7}{6} + \frac{4 \times 3 \times 2}{6} = 11 + 34 = 45$$

↓
محل ۱۲

$$ب) \binom{9}{3} - \binom{4}{2} = \frac{9 \times 8 \times 7}{6} - \frac{4 \times 3 \times 2}{6} = 168 - 28 = 140$$

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