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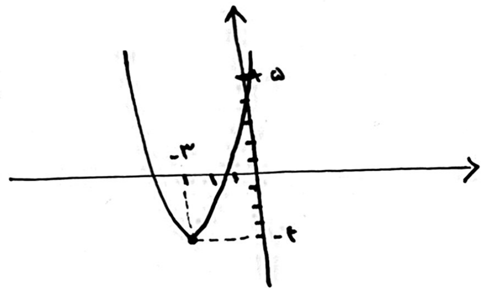
نام و نام خانوادگی ....پسنا قراخانی.......... پاسخنامه تشریحی تکلیف شماره ...۱... کلاس ......پنجشنبه..........

۱ (۳)

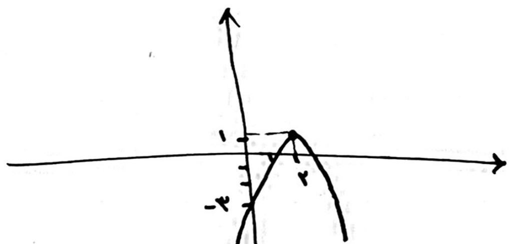
ext: $\frac{-b}{2a} = \frac{-6}{2} = -3$, $\frac{-\Delta}{4a} = \frac{-16}{4} = -4$



Min → ∪ عرض از مبدأ → ۵

۲ (۳)

ext: $\frac{-b}{2a} = \frac{-4}{-2}$, $\frac{-\Delta}{4a} = \frac{-4}{-4} = 1$



Max → ∩ عرض از مبدأ → -۳

ب) ریشه‌ها $\Rightarrow a+b+c=0 \rightarrow (+1)$, $\frac{-3}{-1} = +3$

۳ (۳)

$\Delta = b^2 - 4ac \rightarrow 9 - 8a$

الف) $\Delta > 0 \Rightarrow b^2-4ac > 0 \rightarrow 9-8a>0 \rightarrow 9 > 8a \rightarrow \frac{9}{8} > a$

ب) $\Delta = 0 \Rightarrow b^2-4ac < 0 \rightarrow 9-8a = 0 \rightarrow 8a = 9 \rightarrow a = \frac{9}{8}$

ج) $\Delta < 0 \Rightarrow b^2-4ac < 0 \rightarrow 9-8a < 0 \rightarrow 9 < 8a \rightarrow \frac{9}{8} < a$

د) $\Delta \geq 0 \Rightarrow b^2-4ac \geq 0 \rightarrow 9-8a \geq 0 \rightarrow 9 \geq 8a \rightarrow \frac{9}{8} \geq a$

۴ (۳)

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

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

۵

$\Delta = b^2-4ac$, $x = \frac{-b\pm\sqrt{\Delta}}{2a}$

الف) $x^2-2x-1=0 \rightarrow \Delta = 8 \rightarrow x = \frac{+2\pm\sqrt{8}}{2} \rightarrow \frac{2\pm2\sqrt{2}}{2} = 1\pm\sqrt{2}$ → $1+\sqrt{2}$, $1-\sqrt{2}$

ب) $x^2+x-4=0 \rightarrow \Delta = 1+16 = 17 \rightarrow x = \frac{1\pm\sqrt{17}}{2}$ → $\frac{1+\sqrt{17}}{2}$, $\frac{1-\sqrt{17}}{2}$ (۲)

۶ (۲)

الف) $x^2 - 11x + 28 = 0$

$(x-4)(x-7) \Rightarrow \begin{cases} x=4 \\ x=7 \end{cases}$

ب) $x^2 + 3x - 28 = 0$

$(x+7)(x-4) \Rightarrow \begin{cases} x=-7 \\ x=4 \end{cases}$

۷ (۲)

الف) $5x^2 - 12x + 7 = 0 \rightarrow x^2 - 12x + 35 = 0$ $\quad (x-5)(x-7) \Rightarrow \begin{cases} x=5 \\ x=7 \end{cases}$

α

ب) $3x^2 - 10x + 7 = 0 \rightarrow x^2 - 10x + 21 = 0$ $\quad (x-7)(x-3) \Rightarrow \begin{cases} x=7 \\ x=3 \end{cases}$

α

۸ (۳)

الف) $2x^2 - 5x + 3 = 0$

$a+b+c=0 \rightarrow x=1, \quad \frac{c}{a}=\frac{3}{2}$

ب) $2x^2 + 5x + 3 = 0$

$a+c=b \rightarrow x=-1, \quad \frac{-c}{a}=\frac{-3}{2}$

ج) $2x^2 - 5x + 1 = 0$

$\Delta = b^2 - 4ac = 25 - 8 = 17$

$x = \frac{-b \pm \sqrt{\Delta}}{2a} = \frac{5 \pm \sqrt{17}}{4}$

د) $4x^2 + 7x + 9 = 0$

$\Delta = b^2 - 4ac = 49 - 144 < 0$ ناقابل ریشه حقیقی

۹ (۲)

$S = \frac{-b}{a} = \frac{3}{1} \quad P = \frac{c}{a} = \frac{-2}{1}$

الف) $S^2 - 2P \rightarrow (3)^2 - (2\times -2) = 13$

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

۱۰ (۲)

الف) $\binom{7}{3} + \binom{9}{2} = \frac{7\times 6\times 5!}{5!\times 2!} + \frac{9\times 8\times 7!}{2!\times 7!} = 21 + 36 = 57$

ب) $\binom{9}{3} - \binom{8}{2} = \frac{9\times 8\times 7\times 6!}{3!\times 6!} - \frac{8\times 7\times 6!}{2!\times 6!} = 84 - 28 = 56$

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