۲۰

نام و نام خانوادگی ..نیایش افکار.......... پاسخنامه تشریحی تکلیف شماره .یک.. کلاس .دهم دختر.........

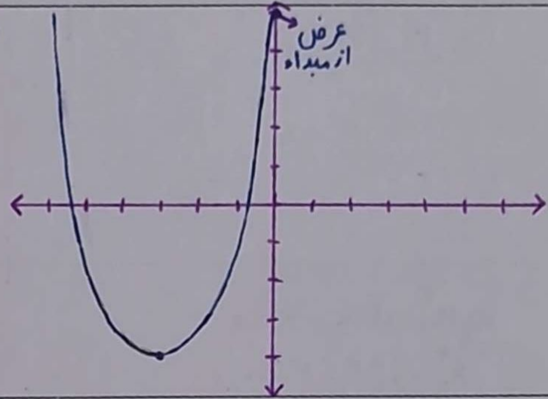
۱ (۴)

الف

$ext = \begin{cases} \frac{-b}{2a} = \frac{-6}{2} = -3 \\ \frac{-\Delta}{4a} = \frac{-(b^2-4ac)}{4a} = \frac{-(36-20)}{4} = \frac{-16}{4} = -4 \end{cases}$

Min دار است

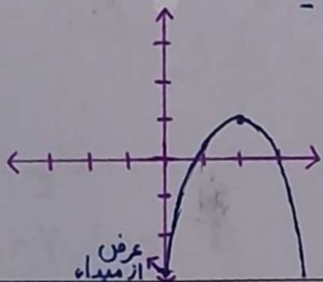
ب



۲ (۴)

الف

$ext = \begin{cases} \frac{-b}{2a} = \frac{-4}{-2} = 2 \\ \frac{-\Delta}{4a} = \frac{-(b^2-4ac)}{4a} = \frac{-(16-12)}{-4} = \frac{-4}{-4} = 1 \end{cases}$



ب

$y = -x^2 + 4x - 3$

$\Delta = b^2 - 4ac$

$\Delta = 16 - 12 = 4$

$\begin{cases} x = \frac{-b+\sqrt{\Delta}}{2a} \\ x = \frac{-b-\sqrt{\Delta}}{2a} \end{cases}$

$x = \frac{-4-\sqrt{4}}{-2}$

$x = \frac{-4+\sqrt{4}}{-2}$

$\boxed{x = 3}$

$\boxed{x = 1}$

$\Delta = b^2 - 4ac$ ، $\Delta > 0$ ۲ ریشه حقیقی ، $\Delta = 0$ ۱ ریشه مضاعف ، $\Delta < 0$ ریشه ندارد ، $\Delta \geq 0$ ریشه دارد

۳ (۴)

الف

$\Delta > 0$

$\Delta = 9 - 8a$

$9 - 8a > 0$

$9 > 8a$

$\boxed{\frac{9}{8} > a}$

ب

$\Delta = 0$

$\Delta = 9 - 8a$

$9 - 8a = 0$

$9 = 8a$

$\boxed{\frac{9}{8} = a}$

ج

$\Delta < 0$

$\Delta = 9 - 8a$

$9 - 8a < 0$

$9 < 8a$

$\boxed{\frac{9}{8} < a}$

د

$\Delta \geq 0$

$\Delta = 9 - 8a$

$9 - 8a \geq 0$

$9 \geq 8a$

$\boxed{\frac{9}{8} \geq a}$

۴ (۴)

الف

$x^2 - 2x - 1 + 2 - 2 = 0$ (مربع کامل)

$(x-1)^2 - 2 = 0$

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

$\boxed{x = 1 - \sqrt{2}}$ $\boxed{x = 1 + \sqrt{2}}$

ب

$x^2 - x - 1 + \frac{5}{4} - \frac{5}{4} = 0$ (مربع کامل)

$\left(x - \frac{1}{2}\right)^2 - \frac{5}{4} = 0$

$\left(x - \frac{1}{2} + \frac{\sqrt{5}}{2}\right)\left(x - \frac{1}{2} - \frac{\sqrt{5}}{2}\right) = 0$

$\boxed{x = \frac{1-\sqrt{5}}{2}}$ $\boxed{x = \frac{1+\sqrt{5}}{2}}$

۵ (۴)

الف

$x^2 - 2x - 1 = 0$

$\Delta = b^2 - 4ac$

$\Delta = 4 + 4 = 8$

$\begin{cases} x = \frac{-b+\sqrt{\Delta}}{2a} \\ x = \frac{-b-\sqrt{\Delta}}{2a} \end{cases}$

$x = \frac{2 - 2\sqrt{2}}{2}$

$x = \frac{2 + 2\sqrt{2}}{2}$

$\boxed{x = 1 - \sqrt{2}}$

$\boxed{x = 1 + \sqrt{2}}$

ب

$x^2 + x - 4 = 0$

$\Delta = b^2 - 4ac$

$\Delta = 1 + 16 = 17$

$\begin{cases} x = \frac{-b+\sqrt{\Delta}}{2a} \\ x = \frac{-b-\sqrt{\Delta}}{2a} \end{cases}$

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

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

الف

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

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

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

ب

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

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

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

(۲) ۶

الف

$5x^2 - 12x + 7 = 0$

$x^2 - 12x + 35 = 0$

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

$\boxed{x=\frac{5}{5}=1}$ $\boxed{x=\frac{7}{5}}$

ب

$3x^2 - 10x + 7 = 0$

$x^2 - 10x + 21 = 0$

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

$\boxed{x=\frac{3}{3}=1}$ $\boxed{x=\frac{7}{3}}$

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الف روش

$2x^2 - 5x + 3 = 0$

$x^2 - 5x + 6 = 0$

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

$\boxed{x=\frac{2}{2}=1}$ $\boxed{x=\frac{3}{2}}$

ب روش

$2x^2 + 5x + 3 = 0$

$x^2 + 5x + 6 = 0$

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

$\boxed{x=\frac{-2}{2}=-1}$ $\boxed{x=\frac{-3}{2}}$

ج دلتا

$2x^2 - 5x + 1 = 0$

$\Delta = b^2 - 4ac$

$\Delta = 25 - 8 = 17$

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

$\boxed{x=\frac{5-\sqrt{17}}{4}}$ $\boxed{x=\frac{5+\sqrt{17}}{4}}$

د دلتا

$4x^2 + 7x + 9 = 0$

$\Delta = b^2 - 4ac$

$\Delta = 49 - 144 = -95$

$\Delta < 0$

معادله جواب ندارد.

(۲) ۸

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

الف) $S^2 - 2P = 3^2 - (2 \times (-2)) = 9 - (-4) = 9 + 4 = \boxed{13}$

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

(۲) ۹

$\binom{n}{k} = \frac{n!}{k!(n-k)!}$

الف) $\binom{7}{5} + \binom{9}{2} = \frac{7\times6\times\cancel{5\times4\times3\times2\times1}}{(\cancel{5\times4\times3\times2\times1})(2\times1)} + \frac{9\times8\times\cancel{7\times6\times5\times4\times3\times2\times1}}{(2\times1)(\cancel{7\times6\times5\times4\times3\times2\times1})} = \frac{42}{2} + \frac{72}{2} = \frac{114}{2} = \boxed{57}$

ب) $\binom{9}{3} - \binom{8}{2} = \frac{9\times8\times7\times\cancel{6\times5\times4\times3\times2\times1}}{(3\times2\times1)(\cancel{6\times5\times4\times3\times2\times1})} - \frac{8\times7\times\cancel{6\times5\times4\times3\times2\times1}}{(2\times1)(\cancel{6\times5\times4\times3\times2\times1})} = \frac{504}{6} - \frac{56}{2} = 84 - 28 = \boxed{56}$

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