➢ Simplify:

1. $\sqrt{9}$ = **3**	2. $\sqrt{25}$ = **5**	3. $\sqrt{81}$ = **9**	4. $\sqrt{121}$ = **11**

If a number is a perfect square, simplify it.
If not, leave the number in radical form (do not change into a decimal).

$x^2 + 3x + 1$

$x^2 + 3x - 4 = 0$

There are many methods that can be used to solve a quadratic equation:

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

1) Graphing the related parabola → look for x-intercepts
2) Solve by Factoring → equation must be equal to 0
3) Square Root Property: If $x^2 = a$, then $x = \pm\sqrt{a}$
4) Completing the Square → works best when $a = 1$ and b is an even number
5) **QUADRATIC FORMULA**

$x = -4 \quad x = 1$

❖ Quadratic Equation: $\boxed{ax^2 + bx + c = 0}$

❖ Practice evaluating $\boxed{b^2 - 4ac}$ and $\boxed{2a}$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$x^2 + 3x - 10$
$(x+5)(x-2)$
$\frac{}{2} \quad \frac{}{2}$
$(2x+5)(x-1)$
$2x = -5 \quad x = 1$
$x = -5/2$

$\boxed{1, -5/2}$

1. $2x^2 + 3x - 5 = 0$
  A b C

$\boxed{b^2 - 4ac}$:

$(3)^2 - 4(2)(-5) = 49$
  b   a   c

$\frac{-(3) \pm \sqrt{49}}{4} = \frac{-3 \pm 7}{4}$

$\boxed{2a}$: $2(2) = 4$ $\frac{-3+7}{4}$ $\frac{-3-7}{4}$

2. $x^2 + 4x + 1 = 0$

$\boxed{b^2 - 4ac}$:

$-2 \pm \sqrt{3}$

$\boxed{2a}$:

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

$\boxed{b^2 - 4ac}$:

$= \frac{1 \pm 2i\sqrt{2}}{3}$

$\boxed{2a}$:

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4. $x^2 - 6x - 2 = 0$

$\boxed{b^2 - 4ac}$:

$3 \pm \sqrt{11}$

$\boxed{2a}$:

5. $-4x^2 + x + 5 = 0$

$\boxed{b^2 - 4ac}$:

$\frac{-1+9}{-8} = -1$

$\frac{-1-9}{-8} = -5/4$

$\boxed{2a}$:

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

$\boxed{b^2 - 4ac}$:

$\frac{-1 \pm \sqrt{7}}{-1}$

$\boxed{2a}$:

pg 7 #2: $\dfrac{-b \pm \sqrt{(b)^2 - 4ac}}{2a}$

$x^2 + 4x + 1 = 0$

$A=1 \quad B=4 \quad C=1$

$\dfrac{-(4) \pm \sqrt{(4)^2 - 4(1)(1)}}{2(1)} = \dfrac{-4 \pm \sqrt{12}}{2}$

$\dfrac{-4 \pm 2\sqrt{3}}{2} = \boxed{-2 \pm \sqrt{3}}$

$2\overline{)12}$
$2\overline{)6}$
3

$-.268$

$-2 + \sqrt{3}$

$-2 - \sqrt{3}$

-3.732

pg 7 #3: $3x^2 - 2x + 3 \qquad \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$A=3 \quad B=-2 \quad C=3$

$\dfrac{-(-2) \pm \sqrt{(-2)^2 - 4(3)(3)}}{2(3)} \text{ calc} = \dfrac{2 \pm \sqrt{-32}}{6}$

$\sqrt{-32}$
i

$2\overline{)32}$
$2\overline{)16}$
$2\overline{)8}$
$2\overline{)4}$
2

$4i\sqrt{2}$

$= \dfrac{1 \pm 2i\sqrt{2}}{3}$

$\dfrac{2 \pm 4i\sqrt{2}}{6}$

pg 7 #4: $x^2 - 6x - 2 \quad \dfrac{-b \pm \sqrt{(b)^2 - 4ac}}{2a} \quad \dfrac{-(-6) \pm \sqrt{(-6)^2 - 4(1)(-2)}}{2(1)}$

$A=1 \quad B=-6 \quad C=-2$

$\dfrac{6 \pm \sqrt{44}}{2}$

$11\overline{)44}$
$2\overline{)4}$
2
$= 2\sqrt{11}$

$\dfrac{6 \pm 2\sqrt{11}}{2}$

$\boxed{3 \pm \sqrt{11}}$

pg 7 #5: $-4x^2 + x + 5$ $\dfrac{-(1) \pm \sqrt{(1)^2 - 4(-4)(5)}}{2(-4)}$

$A = -4 \quad B = 1 \quad C = 5$

$\dfrac{-1 \pm \sqrt{81}}{-8}$ $\dfrac{-1 \pm 9}{-8}$ $\dfrac{-1 + 9}{-8} = 1$

$\dfrac{-1 - 9}{-8} = -5/4$

$-4x^2 + x + 5$

$x^2 + x - 20 \quad (x+5)(x-4)$

$\dfrac{}{4} \qquad \dfrac{}{4}$

$(4x + 5)(x - 1)$

$4x = -5 \quad x = 1$

$x = -5/4$

pg. 7 #6: $-x^2 + 2x + 6$ $\dfrac{-(2) \pm \sqrt{(2)^2 - 4(-1)(6)}}{2(-1)}$

$A = -1 \quad B = 2 \quad C = 6$

$= \dfrac{-2 \pm \sqrt{28}}{-2}$ $2\overline{)28}$ $\dfrac{-2 \pm 2\sqrt{7}}{-2} = \dfrac{-1 \pm \sqrt{7}}{-1}$

$7\overline{)14}$
$\overline{)2}$

pg. 8 #1 $2x^2 - x - 6$

$A = 2 \quad B = -1 \quad C = -6$

$\dfrac{-(-1) \pm \sqrt{(-1)^2 - 4(2)(-6)}}{2(2)} = \dfrac{1 \pm \sqrt{49}}{4} = \dfrac{1 \pm 7}{4}$ $\dfrac{1+7}{4} = 2$

$\dfrac{1-7}{4} = -3/2$