



ANOKA-RAMSEY
COMMUNITY COLLEGE

Math Skills Center

Room: L122 | 763-433-1260

AC Method

General Form of a Quadratic Equation.

$$ax^2 + bx + c = 0$$

AC Method Example

$$4x^2 - 31x - 8$$

a b c

1. Factor out GCF if possible.

Now we apply the AC Method

2. Find factors of **a•c** that add up to **b**.

$$4x^2 - 31x - 8$$

$$(4) \cdot (-8) = -32$$

± 1	± 2	± 4
± 32	± 16	± 8

*Note that we need the factors **-32** and **+1***

3. Rewrite the equation using the two factors to expand the **bx** term.

$$4x^2 - 32x + 1x - 8$$

Note that there are now four terms

4. Now let's factor by grouping.

$$(4x^2 - 32x) + (1x - 8)$$

Factor out GCF from each group.

$$4x(x - 8) + 1(x - 8)$$

*Note we have a common factor of $(x-8)$ and a remainder of $(4x+1)$ *

$$(4x + 1) \cdot (x - 8)$$



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Quadratic Formula

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

Example of Solving with Quadratic Formula:

$$4x^2 - 31x = 8$$

1. Set equation equal to zero.

$$4x^2 - 31x - 8 = 0$$

2. Identify the variables.

$$a = 4 \quad b = -31 \quad c = -8$$

3. Plug values into quadratic formula.

$$x = \frac{-(-31) \pm \sqrt{(-31)^2 - 4(4)(-8)}}{2(4)}$$

4. Simplify formula.

$$x = \frac{31 \pm \sqrt{961 + 128}}{8}$$

$$x = \frac{31 \pm \sqrt{1089}}{8}$$

$$x = \frac{31 \pm 33}{8}$$

5. Split x into two different equations.

$$x = \frac{31 + 33}{8} \qquad x = \frac{31 - 33}{8}$$

6. Solve each equation for x.

$$x = \frac{64}{8} \qquad x = -\frac{2}{8}$$

$$x = 8 \qquad x = -\frac{1}{4}$$