

$$\underline{a}x^2 + \underline{b}x + \underline{c}$$

Factor a·c	Factor need to add to b
20	9
10, 2	12
20, 1	21
5, 4	9

8.6 Factoring Quadratics

$$\frac{a}{a}x^2 + \frac{b}{b}x + \frac{c}{c}$$

$$(x^2 + 5x) + (4x + 20)$$

$$x(x+5) + 4(x+5)$$

$$(x+5)(x+4)$$

Factors 12	add -8
-2 · -6	-8

$$x^2 - 8x + 12$$

$$(x^2 - 2x) + (-6x + 12)$$

$$x(x-2) + -6(x-2)$$

$$(x-2)(x-6)$$

Solving an Equation

1. set the equation to zero

2. Factor

3. Zero product Property to solve.

$$x^2 + 6x = 27$$

$$x^2 + 6x - 27 = 0$$

$$(x^2 + 9x) + (-3x - 27) = 0$$

$$x(x+9) + -3(x+9) = 0$$

$$(x+9)(x-3) = 0$$

$$\begin{array}{l} x+9=0 \\ -9 \quad -9 \\ x=-9 \end{array} \quad \text{OR} \quad \begin{array}{l} x-3=0 \\ +3 \quad +3 \\ x=3 \end{array}$$

Factor a·c	add b
-27	6
-9 · 3	-6
9 · -3	6

Solutions
 $x = -9$ or $x = 3$