

NAME _____

Module 12 Simplifying Algebraic Expressions
by Factoring Polynomials

Lesson 5 Factoring $ax^2 + bx + c$

**guided
notes**

Lesson Objectives

- Factor trinomials of the form $ax^2 + bx + c$, where $a \neq 0, 1$, using the *guess-and-check* method.
- Factor trinomials of the form $ax^2 + bx + c$, where $a \neq 0, 1$, using the *grouping* method.

The pairs of trial factors of $2x^2 + 5x + 3$ are $(2x + 1)(x + 3)$ _____

and $(2x + 3)(x + 1)$ _____.

$2x^2 + 5x + 3$ factors into $(2x + 3)(x + 1)$ _____.

Factoring $ax^2 + bx + c$ using the *guess-and-check* method:

1. Guess first term
2. Guess last term
3. **Check by FOIL** _____
4. Repeat steps 1–3, if needed

➊ Factor using the *guess-and-check* method: $5m^2 - 4m - 1 =$
 $(5m + 1)(m - 1)$ _____

Factoring $ax^2 + bx + c$ using the *grouping* method:

1. Product: **ac** _____, Sum: **b** _____
2. Rewrite **bx** _____ as two terms
3. Factor by **grouping** _____
4. Check

➋ Factor using the *grouping* method: $3x^2 + x - 10 =$ $(3x - 5)(x + 2)$ _____

➌ Factor using the *grouping* method: $8d^2 + 10d - 25 =$ $(2d + 5)(4d - 5)$ _____

