

## Warm-Up Notes

## MAT 100: ELEMENTARY ALGEBRA

Fall 2026

## SECTION 6.4 SPECIAL PRODUCTS

## Install — 10 minute lesson

## Objectives of this Section

- Square a binomial using the Binomial Squares Pattern
- Multiply conjugates using the Product of Conjugates Pattern
- Recognize and use the appropriate special product pattern

## Skills

## Introduced in this section:

- **EXP.SP** — Special Products

## Lesson

FOIL always works, but two binomial shapes show up so often that they're worth knowing on sight: a binomial squared, and two binomials that are identical except one sign. Both have a shortcut pattern that skips straight to the answer's shape — no FOIL required, once you recognize the shape.

## I do

**Watch.** Square the binomial using the pattern  $(a + b)^2 = a^2 + 2ab + b^2$ . Expand  $(2q + \frac{1}{3})^2$ .

## We do

**Together.** Square the binomial using the pattern  $(a + b)^2 = a^2 + 2ab + b^2$ . Expand  $(8p^3 - 3)^2$ .

## You do

**Your turn.** Compute and simplify the product  $(2x^2 - 3y^4)(2x^2 + 3y^4)$  by applying the difference of squares.

**Your turn.** Which method is easier for you when squaring 65: using the binomial pattern  $(60 + 5)^2$  or direct multiplication? Provide a brief justification.

## Practice

1. Compute and simplify the product  $(rs - \frac{2}{7})(rs + \frac{2}{7})$  by applying the difference of squares.
2. Square the binomial using the pattern  $(a + b)^2 = a^2 + 2ab + b^2$ . Expand  $(w + 4)^2$ .
3. Compute and simplify the product  $(ab - 4)(ab + 4)$  by applying the difference of squares.
4. Compute and simplify the product  $(9c - 2d)(9c + 2d)$  by applying the difference of squares.