

Date:

Title:

(A) Lesson Objectives:

- a. Review binomial multiplication using grids & distribution.
- b. Factor difference of squares trinomials in the form of $x^2 - c^2$ using grids and addition/multiplication.
- c. Factor perfect square trinomials in the form of $a^2 + 2ab + b^2$ using grids and addition/multiplication.
- d. Illustrate the factoring process in the context of areas of rectangles.

(B) Binomial Expansion:

a. Expand:

(i) $(x + 4)(x - 4)$

(ii) $(x - 2)(x + 2)$

(iii) $(x - 6)(x + 6)$

(iv) $(2x + 5)(2x - 5)$

(v) $(3x - 4)(3x + 4)$

(vi) $(4x - 7)(4x + 7)$

(vii) $(Ax + B)(Ax - B)$

b. Why are these examples of polynomials called “Difference of Squares” polynomials?

c. Expand:

(i) $(x + 4)^2$

(ii) $(x - 2)^2$

(iii) $(x - 6)^2$

(iv) $(2x + 5)^2$

(v) $(3x - 4)^2$

(vi) $(4x - 7)^2$

(vii) $(Ax + B)^2$

d. Why are these examples of polynomials called “Perfect Square” polynomials?

(C) INVESTIGATION: Setting a Context for factoring:

a. What binomial would make the following algebraic statement true?

i. $x^2 + 14x + 49 = \boxed{} (x + 7)$. Then explain HOW you determined your answer.

ii. $x^2 - 25 = \boxed{} (x - 5)$. Then explain HOW you determined your answer.

Date:

Title:

(D) Applications:

- a. A rectangle has a width given by the expression and a length given by the expression $4x + 3$ and an area given by the expression $16x^2 - 9$:

- i. Label the information on the diagram provided.
- ii. Determine an expression for the width of the rectangle.
- iii. Determine the area and perimeter if $x = 2$ cm.



- b. A rectangle has a width given by the expression and a length given by the expression $3x + 4$ and an area given by the expression $9x^2 + 24x + 16$:

- i. Label the information on the diagram provided.
- ii. Determine an expression for the width of the rectangle.
- iii. Is this shape a rectangle? Why or why not?
- iv. Determine the area and perimeter if $x = 3$ cm.



(E) In Class Examples: Optional Methods

We will use examples from

<http://www.kutasoftware.com/FreeWorksheets/Alg1Worksheets/Factoring%20Special%20Cases.pdf>

<http://www.teacherweb.com/NY/Arlington/AlgebraProject/U6L7FactoringDiffofTwoSquares.pdf>

(F) Homework/Resources

- **HW: from Textbook** →
- Video help from OnlineMathLearning with inequalities:
 - <http://www.onlinemathlearning.com/factor-difference-of-squares.html> for difference of squares
 - <http://www.onlinemathlearning.com/factor-perfect-square.html> - for perfect square trinomials
- Reading from The Math Page
 - <http://www.themathpage.com/alg/difference-two-squares.htm> - for difference of squares
 - <http://www.themathpage.com/alg/perfect-square-trinomial.htm> - for perfect square trinomials