5.4 Factor Trinomials of the Form $ax^2 + bx + c$

A Factor Trinomials of the Form $ax^2 + bx + c$ when a is a common factor

- Factor a as the Greatest Common Factor (GCF)
- Factor the remaining expression $x^2 + bx + c$

Example 1. Factor the following trinomials.

a) $-x^2 - x + 6$

b) $2x^2 + 2x - 4$

c) $-3x^2 - 6x - 3$

d) $5x^2 - 30x + 40$

e) $-5x^2 + 80$

f) $-6x^2 - 30x$

e) $0.5x^2 + 3x + 4$

f) $-0.25x^2 + x - 1$

B Factor Trinomials of the Form $ax^2 + bx + c$ when a is not a common factor (Challenge)

Example 2. Factor $2x^2 + x - 6$

C Factor a Difference of Squares

To factor a difference of squares, use the following identity:

$$a^2 - b^2 = (a - b)(a + b)$$

Example 3. Prove the difference of square identity.

Example 4. Factor by using the difference of squares identity.

a) $x^2 - 16$

b) $100 - x^2$

Notes: Textbook Pages 256-258
Homework: Textbook Pages 259 #2ab, 4ab, 5ab, 6ab, 7ab, 15c (optional)