Journal Entry:

How is factoring a trinomial in the form $ax^2 + bx + c$ when a is not 1 different from when it is 1? How is it similar?

Section 8-7
Factoring Special Cases

Students will be able to factor perfect square trinomials and the difference of two squares.

Remember:

$(a + b)^2 = \boxed{a^2 + 2ab + b^2}$

a b

2ab

This is a perfect square trinomial.

1. The first term is a perfect square
2. The last term is a perfect square
3. The middle term is twice the product of the two square roots.

We are reverse this multiplication to factor.

To factor a perfect square trinomial:

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

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

Example:

$x^2 - 8x + 16 = (x-4)^2$

x ? 4

$2 \cdot x \cdot 4$

Start by square rooting first and last terms to get a and b.

Factor:

1. $x^2 + 6x + 9 = (x+3)^2$

$a = x$ $\quad 2(x \cdot 3)$? $\quad b = 3$

2. $4n^2 - 12n + 9 = (2n-3)^2$

$2n$ $\quad 2 \cdot 2n \cdot 3$? yes $\quad 3$.

Recall from 8-4 that $(a + b)(a - b) = a^2 - b^2$

$(x-2)(x+2) = x^2 - 4$

By working in reverse, again, we can factor the difference of two squares.

Difference of 2 Squares:

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

-must be a difference (subtract)

-first and last must be perfect squares

Factor:

$x^2 - 81$ $\quad \sqrt{81}$

$x \quad 9$

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

Check $\Rightarrow x^2 \cancel{- 9x + 9x} - 81$

Factor:

$25x^2 - 64$

$(5x+8)(5x-8)$

Start by finding the square roots of first and last terms.

Remember to always take out the greatest common factor first. Then, look to see if you can further factor the polynomial using any of the methods learned so far.

Factor:

$12t^2 - 48$

$12(t^2 - 4)$

$12(t + 2)(t - 2)$

$12x^2 + 12x + 3$

$3(\underset{2x}{4x^2} + 4x + \underset{1}{1})$

$3(2x+1)^2$

Hwk: pg. 526 - 528
#12 - 20(4th), 22, 28 - 38 (evens), 39, 40, 49, 52, 54