Algebra 1

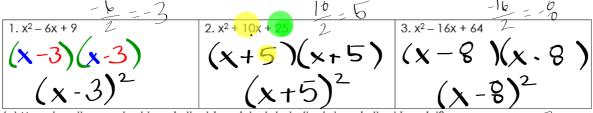
Unit 5 - Quadratic Equations

Notes

Day 5 - Solving by Completing the Square

Some trinomials form special patterns that can easily allow you to factor the quadratic equation. We will look at two special cases:

Review: Factor the following trinomials.



(a) How does the constant term in the binomial relate to the b term in the trinomial?

(b) How does the constant term in the binomial relate to the c term in the trinomial?

$$(Constant)^2 = C$$

Problems 1-3 are called Perfect Square Trinomials. These trinomials are called perfect square trinomials because when they are in their factored form, they are a binomial squared. An example would be $x^2 + 12x + 36$. Its factored form is $(x + 6)^2$, which is a binomial squared.

But what if you were not given the c term of a trinomial? Let's see if you can find the missing c term!

Directions: Complete the square for the following expressions. Then factor your expression.

$$4 = (x + 2)^{2}$$

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$$2 = 4$$

b.
$$x^{2} + (3x + 1) = (X + 4)^{2}$$

 $\frac{8}{2} = 4 + (4)^{2} = 16$

$$(-1)^2$$
 e. $x^2 - 2x + 1 = (X - 1)^2 = 1$

f.
$$x^{2} + \frac{18}{x} + \frac{8}{1} = (X - 9)^{2}$$

 $\frac{-18}{2} = -9$ $(-9)^{2} = 8$

$$|x^{2} + 5x + \frac{1}{4} = (5)^{2}$$

$$\frac{5}{2} - (\frac{5}{2})^{2} - \frac{25}{4}$$

k.
$$x^2 - 7x + \underline{\hspace{1cm}} = ($$

$$| x^2 + 9x + _ = ($$