Coreq Support for Section 2.2

# Topic 1: Squaring Binomials

# (Video: Special Products 0:00 – 8:20)

There are two identities that can be used to square a binomial.

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

$$\left(a-b\right)^{2}=a^{2}-2ab+b^{2}$$

# Topic 2: Factoring Perfect Square Trinomials

# (Video: Perfect Square Trinomials)

A trinomial is a **perfect square trinomial** if it can be written so that its first term is the square of some quantity $a$, its last term is the square of some quantity $b$, and its middle term is twice the product of the quantities $a$ and $b$.

The two identities from above that we used to square a binomial can also be used to factor a perfect square trinomial.

# Topic 3: Creating a Perfect Square Trinomial

We know from section 1.4 that we can use the square root property to solve quadratic equations such as $\left(x+1\right)^{2}=5$. Notice that one side of the equation is a quantity squared and the other side is a constant.

Consider the equation $x^{2}+2x=4$. In order to solve this equation by using the square root property, we need the left side of the equation to be a perfect square trinomial, meaning it can be written as a binomial squared. We can do this by adding $1$ to both sides of the equation.

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

$$x^{2}+2x+1=4+1$$

$$\left(x+1\right)^{2}=5$$

The process of rewriting the equation so that one side is a perfect square trinomial is called **completing the square**.

# Topic 4: Solving Quadratic Equations by Using the Square Root Property