

## 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.

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

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

### 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  $(x + 1)^2 = 5$ . 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.

$$\begin{aligned}x^2 + 2x &= 4 \\x^2 + 2x + 1 &= 4 + 1 \\(x + 1)^2 &= 5\end{aligned}$$

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