Coreq Support for Section 2.2

Topic 1: Solving Quadratic Equations by Using the Square Root Property

Topic 2: 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 3: 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 4: Creating a Perfect Square Trinomial

We have previously used 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 $x^2 + 2x = 4$. 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.

$$x^2 + 2x = 4$$
$$x^2 + 2x + 1 = 4 + 1$$
$$(x+1)^2 = 5$$

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