Section 6.6 Factoring Trinomials

# Objective 1: Factoring Trinomials of the Form

Consider the quadratic expression . Since , we say that is a **factored form** of .

The factored form of a quadratic expression is the product of two linear factors and possibly a constant. If a quadratic expression cannot be factored over the integers, then we say that it is **prime**.

Factor each trinomial.

|  |  |
| --- | --- |
| a. | b. |

# Objective 2: Factoring Trinomials of the Form (Where

When the leading coefficient, , is not equal to one, we will use one of two methods to factor the expression. The first is trial and error. Trial and error can be an efficient choice when and do not have many factor pairs.

Factor each trinomial.

|  |  |
| --- | --- |
| a. | b. |

Another method that can be used is factoring by grouping by first rewriting the trinomial as a four-term polynomial. This method is sometimes referred to as splitting the linear term.

**Steps For Factoring a Trinomial of the Form by Grouping:**

**Step 1:** Find two numbers that have a product of and a sum of .

**Step 2:** Write the term as a sum using the numbers found in Step 1.

**Step 3**: Factor by grouping.

Factor each trinomial.

|  |  |
| --- | --- |
| c. | d. |

When factoring remember to always look for a greatest common factor first.

e. Factor the trinomial.

# Objective 3: Factoring by Substitution

Sometimes expressions that are not quadratic can be made to resemble a quadratic expression by using a substitution. Expressions of this type are said to be quadratic in form or “disguised quadratics.”

Use substitution to factor each polynomial.

|  |  |
| --- | --- |
| a. | b. |