Lesson 1.3.1: Factoring Trinomials with 1 as Leading Coefficient

General Trinomial:
- ► When you multiply two binomial factors which are not identical, the result is a quadratic trinomial or general trinomial.
- ► An expression in the form

$$ax^2 + bx + c$$

where a, b, and c are integers

Types of General Trinomials:
1. Trinomial in the form of $ax^2 + bx + c$, where $a = 1$
2. Trinomial in the form of $ax^2 + bx + c$, where $a \neq 1$

Steps in Factoring Trinomials with 1 as Leading Coefficient:
1. Factor out the greatest common monomial of all terms of the given trinomial.
2. List the factors of the last term (c).
3. Find two factors with a product equal to the last term (c) and a sum equal to the middle term (b).
4. Write the factored form of the trinomial following the pattern

$$(x + \text{first factor})(x + \text{second factor})$$

.

Practice Exercises 1.3.1

Factor the following polynomials completely.

1. $x^2 - x - 20$
2. $x^2 + 17x + 72$
3. $a^2 + 10a + 24$
4. $m^2 - m - 42$
5. $2a^3 - 6a^2 - 36a$
6. $a^2 - 2ab - 3b^2$
7. $m^2 + mn - 12n^2$
8. $2a^3 + 20a^2 + 48a$
9. $c^2 - 6cd + 5d^2$
10. $2m^2 + 10mn + 12n^2$

Activity 1.3.1

Factor the following polynomials completely.

1. $x^2 + 4x - 21$
2. $x^2 - 5x - 14$
3. $2a^3 + 20a^2 + 48a$
4. $m^2 + m - 12$
5. $a^2 - 8a - 48$
6. $3m^2 + 6mn - 45n^2$
7. $2b^3 + 10b^2c - 28bc^2$
8. $c^2 - 11cd + 24d^2$
9. $5m^3 - 20m^2 + 15m$
10. $4a^2 + 24a - 64$