**5.2 – Like and Unlike Terms**

What would be the best way to organize this list when going to the grocery store?

 2 bananas 5 oranges

 3 oranges 8 bananas

 1 apple 10 oranges

 4 bananas 2 bananas

 2 apples 5 apples

This is an example of putting **like terms** together. In algebra, like terms are those that have the same variable(s) raised to the same exponent(s).

Bananas and apples are what we would call **unlike terms**. In algebra, unlike terms have different variables or the same variables, but raised to different exponents.

Examples of like terms: Examples of unlike terms:

We can use **algebra tiles** to "combine like terms", thereby simplifying a polynomial.

Ex. 1: Simplify the following polynomial by representing it with algebra tiles and removing zero pairs.

$-2n^{2}-4n+3-2n+n^{2}-1$

We don't always want to draw algebra tiles to simplify a polynomial. Instead, you can determine which terms are like terms and then combine them by adding their coefficients (the numbers in front of the variables):

 $7x+5x=$ $-2a^{2}b-8a^{2}b=$

 $-2y+3y=$ $4pq+7pq-2qp=$

Ex. 2: Simplify the following polynomials. Write the result in descending order.

1. $p^{2}-2+5p+3+2p-4p^{2}-10$

(b) $2x-5+3x^{4}-4x+x^{2}-2x^{4}-2+x$

1. $4xy-y^{2}-3x^{2}+2xy-x-3y^{2}$

Ex. 3: Are $2b^{2}+4b-6$ and $5b^{2}-4b+2-3b^{2}+8b-4$ **equivalent polynomials**?