Properties of Real Numbers
Especially Distributive Property

Complete this worksheet and hand it in on Friday (the day of the first exam). It will count the same as one homework assignment.

The order of operations that we study in section 1.6 dictates what order is implied by the symbols in a problem. Often, it is more convenient to do things in a different order. You must learn how this is done and when changing things gives the same result. Our goal is to make a problem easier to do while still getting the correct answer!

For example, the order of operations says that if the only operations in your problem are subtraction and addition, the order that is implied is from left to right.

$$-3 + 12 - 5$$
$$= 9 - 5 \qquad \text{since } -3 + 12 \text{ is } 9$$
$$= 4$$

As we have worked on earlier however, if the only operation is addition, the order that you add the numbers together can be changed without changing the result. For example,

$$-3 + 5 + (-7)$$
$$= 2 + (-7)$$
$$= -5$$

can be done in the following way if you would like, since it's all addition and you are only changing the order:

$$-3 + 5 + (-7)$$
$$= 5 + (-3) + (-7)$$
$$= 5 + (-10)$$
$$= -5$$

Adding the -3 to the -7 first is fine!

In general, $a + b = b + a$ and $(a + b) + c = a + (b + c)$, that is, neither the order that you write the sum nor the order that you do the sum matters. You get the same result!

However, the order that you subtract numbers together DOES change the result, or at least it changes the sign of the result. That is, $a - b = -(b - a)$. If you want to change the order, first covert your subtraction to adding the opposite. That is, make $a - b$ into $a + (-b)$ and you can change the order!