Two Column Note-taking Method

Topic: Factoring by Grouping
Section: 3.5; pg. 426 - 430

Date: 9/23/2015

Concepts/Procedures/Main Ideas

Examples

Factoring by Grouping:

- Used for 4-term polynomials OR for 3-term polynomials when the coefficient of the leading term is bigger than 1

Procedure:
1. Factor out the GCF, if there is one from all four terms.
2. If necessary, rearrange the terms so that the first two terms have a common factor and the last two terms have a common factor.
3. Then, use the distributive property to factor each group of two terms.

4. Factor the GCF from the results of step 3.

Caution!
- Don't forget to include any GCF that you factored out in step 1 in your final answer!
- If the first term of the second group is a negative number, factor out the negative GCF! (like in this example)

Example 1: Factor the following 4-term polynomial:
$$x^2 y + 2xy - 6xy - 12y$$

1. GCF is y, so factor it out: $y(x^2 + 2x - 6x - 12)$

2. Didn't have to rearrange the terms in this example, so go to step 3.

3. $y\left[x(x+2) - 6(x+2) \right]$

Note: use brackets around the polynomial inside the parentheses so that you don't lose track of the GCF! It's part of the final answer!

4. The GCF of the two terms inside the brackets is a binomial, (x + 2) so factor it out now.
$$y\left[(x+2)(x-6) \right]$$

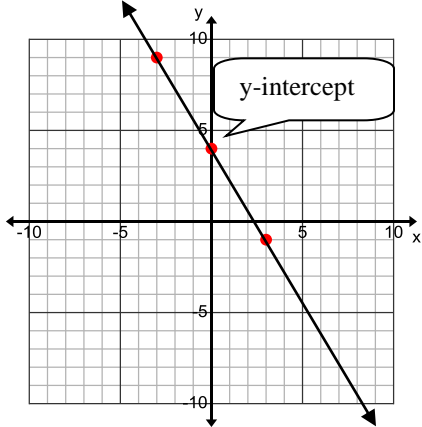Careful! Always make sure that your final factorization is completely factored!

Questions/Clarification:
- Do I have to use brackets?
- Is it the same if I write the answer with factors in a different order?
- Can I use this method for any of my factoring problems?

Three Column Note-taking Method

Topic: How to graph a linear equation using the slope-intercept method	Section: 6.2	Date: 10/15/2015
Key Words/Rules	Examples	Explanations/Procedures
Slope-Intercept Method for graphing linear equations:	Graph 5x + 3y = 12 by using the slope and y-intercept.

$$3y = -5x + 12$$
$$\frac{3y}{3} = \frac{-5x}{3} + \frac{12}{3}$$
$$y = \frac{-5x}{3} + 4$$

The slope is -5/3. So, from the y-intercept, we will move down 5 units from the intercept and then to the right 3 units to find another point on the line.
We can also move 5 units up from the intercept and down 3 units to find another point on the line. | 1. If necessary, solve the equation for y.
$$(Y = mx + b)$$

Caution! Don't forget to divide all terms in the equation when solving the equation for y!

2. Plot the y-intercept.

3. Use the slope to find to find two or more points on the line.

4. Using a straight-edge, draw a straight line through the three points. Draw an arrowhead on each end of the line.

Note: You Have not graphed the line until you draw a line through the points!!! |
| Questions/Clarification |||
| Q1: Why do I have to put arrows on the line?
Q2: What if I have a fraction for the y-intercept, then what do I do? |||