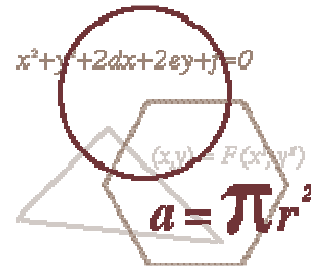# Algebra/Geometry Institute Summer 2005

Going up or coming down
(percent of increase or decrease)

Faculty Name: Keiya Brown
School: West Bolivar Middle School
Grade Level: 7th

1   Teaching Objective
        8i Find the percent of increase and decrease.

2   Instructional Activities
        (This lesson will be implemented after all students have mastered solving
          proportions.)

        * The teacher will begin the lesson by asking the following question:
                "How do we calculate percentages?"

        * The teacher will lead the discussion by explaining the correct answer. When the
          measurement or amount of something increases or decreases over time, a
          percent of increase or decrease can be calculated. This is done by first
          calculating the difference (subtracting the two amounts) and dividing the result
          by the original amount of the item.

        * The teacher will discuss the definitions for the percent of increase and the
          percent of decrease.
                    -- The percent of increase is the percent of the original amount that
                       something increases by.
                    -- The percent of decrease is the percent of the
                        original amount that something decreases by.

        * The teacher will write the following proportion on the board:
                $$\frac{\text{Difference in the amount over time}}{\text{Original amount}} = \frac{\text{percent}}{100}$$

        * The teacher will write three steps needed to solve problems involving the
          percentage of increase and decrease on the board.

                1) Find the difference in the two quantities. (Subtract)
                2) Set up the problems as a proportion.
                3) Solve the proportion by cross-multiplying and dividing to find
                    the percent.

* The teacher will work the following example on the board:

      The original price of the sofa was $500. It is now on sale for $440.
      What was the percent of decrease?

* The teacher will give four problems for the students to practice at their seat.
  (See attachment 1)

* The teacher will have the students give their answers and explain what they did.

* The teacher will check to see if there are any questions from the class. If there
  are no questions, the teacher will distribute the class assignment that will be
  taken up. (See attachment 2)

3 Materials and Resources

Sales papers from two different grocery stores
Paper
Pencil
Attachment 2

Resources
Textbook: <u>Glencoe Mathematics;</u> The McGraw-Hill Companies. Copyright 2001.
Website: www.gomath.com

4 Assessment

- The teacher will observe the students as they work at their seats. The teacher will
  look to see if the students are following the given directions.

- Performance assessment: The teacher will allow each student to explain a specific
  step to the class. All papers (attachment 2) will be taken up and graded.

Directions: Solve the following problems by calculating the percent of
increase or decrease. Be sure to use the formula that was given
in the class discussion. Show all work and calculations.

1. Shelly weighed 200 pounds before her diet. After three weeks on the
    diet, Shelly weighed herself again. This time she weighed 150 pounds.
    Calculate the percent of decrease.

2. The number of students enrolled in the 7th grade at Brown Middle School
    grew from 347 to 401 over a three year period. What is the percent of
    increase in enrollment in the 7th grade at this school?

3. 681 houses were sold in Memphis during the month of October. 326
    houses were sold in November. Calculate the percent of decrease in
    housing sales in Memphis. Round your answer to the nearest tenth.

4. Richard's health insurance premium for last year was $1440. If he paid
    $1512 this year, what is the percent of increase on his health insurance
    premium?

DIRECTIONS: Find the current cost of the foods listed below by looking at your sale papers. Calculate the percent of increase or decrease for each item. Show all work.

FOOD ITEM	PRICE IN 2000	PRICE TODAY
Eggs	$3.00 per dozen	
Bread	$1.60 per loaf	
Bacon	$2.00 per pound	
Gallon of milk	$3.15	
5 pounds of sugar	$2.49	