Algebra II
Refresh Your Skills Chapter 1 – Differences and Ratios

A lot of Algebra deals with describing how things change. Two important concepts that describe how a quantity has changed are the *difference* and the *ratio*. To find the difference you subtract ($difference = now - previous$) and to find the ratio you divide $\left(\dfrac{now}{previous}\right)$. We also use percentages to describe change. $\frac{1}{5}$ $\&$ $100 - 20$

[handwritten: $\frac{120}{100} = \frac{6}{5} = 1\frac{1}{5}$ $\frac{100}{120} = \frac{5}{6}$]

1. Find the difference and the ratio for each pair of numbers. (previous, now)

   a. 100, 120   *[120−100, 20]*

   b. 50, 53   *[53−50, 3]*

   c. 200, 1140   *[1140−200, 1060, 940]*

   d. 12, 9   *[12−9, 9−12, −3]*

[handwritten left margin: Ratio $\left(\dfrac{a}{b}\right)$ = decimal / percent   a:b]

2. Match each description to its formula.

   a. 100 increased by 5%

   b. 100 decreased by 50%

   c. 100 increased by 50%

   d. 100 decreased by 5%

   i. $100(1 + 0.5)$

   ii. $100(1 - 0.05)$

   iii. $100(1 - 0.5)$

   iv. $100(1 + 0.05)$

3. Find each new quantity described.

   a. 20 increased by 15%   b. 60 increased by 20%   c. 300 decreased by 18%

   d. 40 decreased by 30%   e. 110 increased by 20%   f. 250 decreased by 40%

4. The price of a $30,000 automobile is reduced by 15%, and then the price is cut by $1,200. What is the new price?

5. Kevin has $400 in his savings account. This amount will increase by 2% by the end of the year because of the interest the account earns. Kevin plans to withdraw $150 on January 1 to purchase a new speaker system for his MP3 player. What will his balance be?