

## Worksheet 3: Percent Increases

Name: \_\_\_\_\_ Date: \_\_\_\_\_

When we increase a quantity by a percent of the quantity, we are starting with 100% of the quantity.

*Example 1: Increasing a quantity by 5% is the same as taking  $100\% + 5\% = 105\%$  of the quantity*

*Example 2: Increasing a quantity by 35% is the same as taking  $100\% + 35\% = 135\%$  of the quantity*

Increasing a quantity by  $N\%$  is the same as taking  $(100 + N)\%$  of the quantity

**Directions:** Answer each of the following questions. Show all work for full credit.

1. You invest \$1,000 with interest rate of 7% annually. How much will you have after one year? *Another way of asking this: What's 7% more than \$1000?*
2. What's 14% more than \$45?
3. Asia opens a bank account that earns 1.2% interest each year. She deposits \$5,000. What number can you multiply \$5,000 by to calculate how much money she will have after one year?
4. Alysia recently put all her money into an investment for one year. At the end of that year she had 113% of the amount she initially deposited. What was the annual interest rate of her investment?

5. Tamika invested \$5,000. When she withdrew her money, the investment was worth \$6,150.
  - a. By what percent did her investment increase?
  
  
  
  
  
  
  
  
  
  
  - b. Assuming she invested for one year, what was her interest rate?
  
6. John borrowed \$859 from his good friend Susan to buy a suit for the first day at his new job. Susan agreed to lend the money **if** he paid her back 30% more than she lent him.\*\*
  - a. In dollars, how much does John owe Susan?
  
  
  
  
  
  
  
  
  
  
  - b. What percent of the original amount borrowed does John owe Susan?
  
7. Nora was shopping for investment opportunities and found one advertising that if you invest with them for one year, you will increase your money by 30%.\*\*
  - a. What is the interest rate for this investment opportunity?
  
  
  
  
  
  
  
  
  
  
  - b. How much money will Nora earn if she invests \$4500?
  
8. Charlie is confused. In #6, 30% represented one number and in #7, 30% represented a different number. Does this mean he made a mistake? Shouldn't 30% always equal 30%?