Name _____ Date _____

LESSON 2.8

LESSON 2.8 Challenge Practice

For use with the lesson "Rewrite Equations and Formulas"

In Exercises 1–5 solve the equation for the indicated variable.

1. $x = \frac{2a + 3b + c}{abc}$ for c

2. $\frac{x}{y} = \frac{a + y}{2ax + 3}$ for a

3. $x = a\left(\frac{xy}{a - y}\right) + 1$ for x

4. $\frac{x + c}{x - y} = \frac{x + 2c}{y + 3c}$ for y

5. $\frac{a + b}{c + d} = \frac{u + v}{x + y}$ for y

6. The number of blocks a mason can set in one hour is given by the equation $b = 30t$ where t is the time (in hours) required to set b number of blocks. Each block adds 96 square inches of surface area to a wall that is being constructed. Express the surface area of the wall as a function of t.

7. The price charged for a certain item is determined by the equation $x = \frac{100 + p}{2p}$ where p represents the price of the item and x represents the number of items sold at price p. Revenue is equal to price times quantity sold. Express the revenue earned by the sale of this product as a function of x.

8. A hybrid automobile gets 75 miles per gallon of gasoline when driven at a speed of 50 miles per hour. Express the gallons of gasoline g used in terms of hours t spent driving at this speed.

9. The volume of an open box (no top on the box) with a square base is given by the formula $V = x^2y$ where x is the length of the sides of the square base of the box and y is the height of the box. The surface area of the box is given by the formula $S = x^2 + 4xy$. Express the volume of the box in terms of x and S.

10. The conversion between degrees Fahrenheit and degrees Celsius is given by the formula $C = \frac{5}{9}(F - 32)$ where C is the temperature in degrees Celsius and F is the temperature in degrees Fahrenheit. The conversion between degrees Kelvin and degrees Celsius is given by the formula $C = K + 273.15$ where K is the temperature in degrees Kelvin. Write the formula to convert from degrees Kelvin to degrees Fahrenheit.