

Problem Solving Workshop: Mixed Problem Solving

For use with the lessons "Write Ratios and Proportions", "Solve Proportions Using Cross Products", "Solve Percent Problems", and "Rewrite Equations and Formulas"

- 1. Multi-Step Problem** The table below shows the results of a survey in which students at a school were asked to name their favorite pizza topping.

Topping	Students
Mushrooms	7
Pepperoni	22
Sausage	6
Other	6

- a.** There are 984 students in the school. Write a proportion that you can use to predict the number of students at the school who named mushrooms as their favorite pizza topping.
- b.** Solve the proportion.
- 2. Multi-Step Problem** In a 3-game basketball tournament, Katie made 1 out of 3 free throws in the first game. She made 3 out of 5 free throws in the second game. In the third game, she made every free throw that she attempted.
- a.** Katie finished the tournament making 75% of her free throws. Write a percent proportion for the situation. Let x represent the number of free throws she made in the third game.
- b.** Solve the proportion in part (a) to find how many free throws she made in the third game.
- 3. Short Response** The ratio of the length of a basketball court to the width of the court is 1.88 : 1. A scale drawing of the basketball court has a scale 1 in. : 20 ft. The width of the court in the drawing is 2.5 inches. What is the actual length of the court? *Explain* your reasoning.
- 4. Gridded Answer** A football kicker made 80% of his field goals during a season. The kicker made 20 field goals. How many field goals did he attempt?
- 5. Extended Response** Two different stores are selling a stereo that you want to buy.
- a.** At one store, the stereo is on sale for 30% off the original price of \$120. How much money will you save by purchasing the stereo on sale at this store?
- b.** At the other store, the stereo is on sale for 25% off the original price of \$110. How much money will you save by purchasing the stereo on sale at this store?
- c.** Which stereo should you buy? *Explain*.
- 6. Short Response** You invest \$200. After one year, the total of the investment is \$208.80. Solve the formula $A = P + Prt$ where A is the total of the investment, P is the principal (amount invested), r is the annual simple interest rate, and t is the time in years, for r . Find the annual simple interest rate. How much money would your investment have if you leave it in for another two years with the same interest rate? *Explain* how you found your answer.
- 7. Open-Ended** Describe a real-world situation where a percent greater than 100% can be used.
- 8. Extended Response** You and a friend are waiting in separate lines to purchase food.
- a.** Every 5 minutes, the cashier at the head of your line helps 4 people. There are 15 people in line in front of you. Write a proportion that can be used to determine how long you will have to wait to purchase food.
- b.** Every 10 minutes, the cashier at the head of your friend's line helps 7 people. There are 14 people in line in front of your friend. Write a proportion that can be used to determine how long your friend will have to wait to purchase food.
- c.** Will you or your friend be able to purchase food first? *Explain* your reasoning.