Comparing Ratios

Use What You've Learned
Answers and Explanations

Answer the following questions using number sense and estimation.

1. Connie needs to buy some toilet paper. The grocery store has two different-sized packages of Connie's favorite brand of toilet paper. The 12-pack costs $5.00, and the 4-pack costs $2.00. Which package is the better buy? Explain your reasoning.

   The 12-pack has three times as many rolls of toilet paper as the 4-pack. Twelve rolls at the 4-pack price should cost three times as much as the price of the 4-pack. The 4-pack costs $2.00, so 12 rolls at that price would cost $6.00 (3 x $2.00 = $6.00). This is more than the price of the 12-pack, so the 12-pack is the better buy.

2. Raoul stopped by the grocery store to pick up golden raisins. He could buy 2½ cups of golden raisins for $2.25 or 4 cups of golden raisins in a re-sealable bag for $3.99. Which is the better buy? Explain your reasoning.

   The bag with 4 cups has a unit price of about $1.00 per cup ($3.99 is close to $4.00 and $4.00 ÷ 4 = $1.00). If the bag with 2½ cups would have a unit price of about $1.00 per cup, it would cost about $2.50 (2½ x $1.00 = $2.50). The bag costs less than $2.50, so the bag with 2½ cups is the better buy.

3. Cinnamon is available at Hometown Grocery in two sizes. Which is the better buy? Explain your reasoning.

   1 oz. for $1.19 2.37 oz. for $1.79

   If 1 oz. costs $1.19, 2 oz. would cost over two dollars. Therefore, more than 2 oz. for less than two dollars is a better buy. The 2.37 oz. container for $1.79 is the better buy.

4. John and Chris had a free throw contest. John made nine shots out of his 18 attempts, whereas Chris made 11 shots out of his 25 attempts. Who had the better shooting percentage?

   John made half of the shots he attempted (18 ÷ 2 = 9). Chris made less than half of the shots he attempted (25 ÷ 2 = 12.5 and 11 < 12.5). This means that John had the better shooting percentage.

5. Greta, Peter, and Shantel want to carpool to an amusement park using the car with the best gas mileage. Greta said her car used 8 gallons of gas to travel 188 miles. Peter's car used 11 gallons of gas to travel 198 miles. Shantel's car used 6 gallons of gas to travel 168 miles. Whose car should they use?

   Greta's car can travel 23.5 miles per gallon (188 miles ÷ 8 gallons = 23.5 miles per gallon). Peter's car can travel 18 miles per gallon (198 miles ÷ 11 gallons = 18 miles per gallon). Shantel's car can travel 28 miles per gallon (168 miles ÷ 6 gallons = 28 miles per gallon). Shantel's car can travel more miles per gallon of gasoline used, so they should use Shantel's car.

6. Sonja and Kareem are in different math classes but they both have quizzes every Friday. This week Sonja had a 20-point quiz and got 17 correct. Kareem had a 12-point quiz and got nine correct. Which student earned a higher grade on this week's quiz?

   Sonja got $\frac{17}{20}$ of the problems correct. Kareem got $\frac{9}{12}$ or $\frac{3}{4}$ of the problems correct. $\frac{3}{4} = \frac{15}{20}$ and $\frac{17}{20}$ is greater than $\frac{15}{20}$, so $\frac{17}{20}$ is greater than $\frac{3}{4}$. Sonja earned a higher grade on this week's quiz.

   Another way of thinking about this problem is to use percentages. Sonja got 17 out of 20 correct or 85%. Kareem got 9 out of 12 correct or 75%, so Sonja earned a higher percentage on this week's quiz.