Lesson 2-6: Apply Proportional Reasoning to Solve Problems

1. Sample answer: If you can identify a problem situation as involving a proportional relationship, you can use what you know about equivalent ratios and the constant of proportionality to solve the problem.

2. Sample answer: When you know different ways to represent a proportional relationship, you can use the way that is most helpful to solve the problem.

3. Sample answer: There is one way to adjust two quantities so they are proportional. You can multiply both quantities by the same number.

4. a. Yes; you can write the equation $y = \frac{15}{8}x$ to represent the situation, which is a proportional relationship.
   b. $28\frac{1}{8}$ oz.

5. Sample answer: Depending on how big the jar is, put in 12 white grapes. Or, take out 4 white grapes and 6 cherry halves.

6. No, because there is no constant multiple; when Hector is 16, he is 8 years older than he is now, so Mary will also be 8 years older, or 11 years old.

7. Yes, if you assume each of the 5 bags costs the same as each of the 3 bags; the cat food costs $5.25 per bag so 5 bags cost $26.25.

8. a. $\frac{1}{9}$
   b. $\frac{1}{81}$; Sample answer: Since area is length times width, the constant of proportionality is $\frac{1}{9} \times \frac{1}{9} = \frac{1}{81}$.

9. 60 pieces of chicken; $9\frac{1}{6}$ pounds of deli meats; $26\frac{7}{8}$ pounds of lasagna

10. a. $11.52
    b. $18.72

11. Brittney's dog; the constant of proportionality is greater.

12. Yes; 4

13. a. Yes; you can write an equation $c = \frac{3}{7}w$ to represent the situation.
    b. B