

29. **WRITING** Suppose you solve a linear system using substitution. *Explain* how you can use a graph to check your solution.
30. **CHALLENGE** Find values of a and b so that the linear system shown has a solution of $(-9, 4)$.
- $$ax + by = -16 \quad \text{Equation 1}$$
- $$ax - by = -56 \quad \text{Equation 2}$$

PROBLEM SOLVING

EXAMPLE 3

on p. 437
for Exs. 31–33

31. **FUNDRAISING** During a football game, the parents of the football players sell pretzels and popcorn to raise money for new uniforms. They charge \$2.50 for a bag of popcorn and \$2 for a pretzel. The parents collect \$336 in sales during the game. They sell twice as many bags of popcorn as pretzels. How many bags of popcorn do they sell? How many pretzels do they sell?

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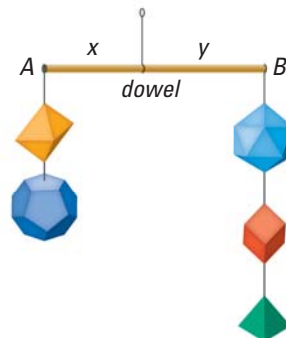
32. **TUBING COSTS** The members of an outing club take a day-long tubing trip down a river. The company that offers the tubing trip charges \$15 to rent a tube for a person to use and \$7.50 to rent a “cooler” tube, which is used to carry food and water in a cooler. The club members spend \$360 to rent a total of 26 tubes. How many of each type of tube do they rent?

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33. **TAKS REASONING** In the mobile shown, objects are attached to each end of a dowel. For the dowel to balance, the following must be true:

$$x \cdot \begin{array}{l} \text{Weight hanging} \\ \text{from point A} \end{array} = y \cdot \begin{array}{l} \text{Weight hanging} \\ \text{from point B} \end{array}$$

The weight of the objects hanging from point A is 1.5 pounds, and the weight of the objects hanging from point B is 1.2 pounds. The length of the dowel is 9 inches. How far from point A should the string be placed? *Explain.*



34. **MULTI-STEP PROBLEM** Two swimming teams are competing in a 400 meter medley relay. During the last leg of the race, the swimmer in lane 1 has a 1.2 second head start on the swimmer in lane 2, as shown.



- a. Let t be the time since the swimmer in lane 2 started the last leg. After how many seconds into the leg will the swimmer in lane 2 catch up to the swimmer in lane 1?
- b. Does the swimmer in lane 2 catch up to the swimmer in lane 1 before the race ends? *Explain.*