Fishing **In Exercises 7–13, use the diagram and the information below.** *(See Examples 3 and 4.)*
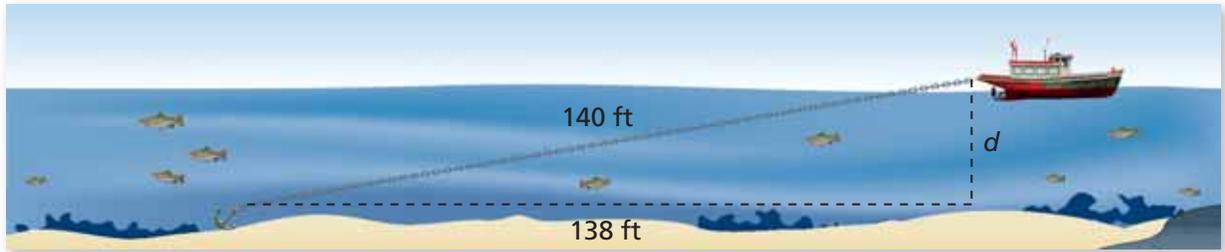
The 28-foot-long fishing boat has twin turbo diesel engines and a 220-gallon fuel tank. The average cruising speed of the boat to its anchoring point is 20 knots. The horizontal distance between the fishing boat and its anchor is 138 feet. (*Note:* 1 knot = 1.15 mph)

140 ft

d

138 ft

7. What is the average speed in miles per hour of the boat to its anchoring point?

8. The fishing boat takes 48 minutes to cruise straight to its anchoring point from the dock. How far from the dock is the anchoring point?

9. A general rule of thumb is to let out 7 to 10 feet of anchor line for every foot of water depth. The fishing boat in the diagram used this rule when it anchored. What is the range of the depth *d* of the water?

10. The anchor line ends with a section of chain. This chain provides extra weight and prevents jagged bottom rocks from cutting the anchor line. The recommended length of an anchor chain is one-half foot for every foot of boat length. What is the recommended length for the boat shown?

11. What is the maximum water surface area that the fishing boat can cover when the anchor is stationary?

12. Diesel fuel weighs about 7.1 pounds per gallon. How much does three-fourths of a tank of fuel weigh?

13. Diesel engines use about 1 gallon of fuel per hour for every 18 horsepower used. How many hours can the boat run at 342 horsepower on a half tank of fuel?

14. **Fuel Reserves** A general rule of thumb when fishing is to use one-third of the fuel in your tank to get there, use one-third to get back, and save the last third as an emergency backup. The fuel gauge shows the amount of fuel in a fishing boat after reaching its anchor point. Will the boat have enough fuel reserves according to the rule of thumb? Explain your reasoning.