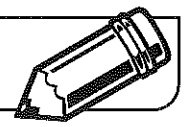
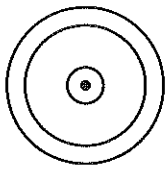
Name Date Time

LESSON 11•4

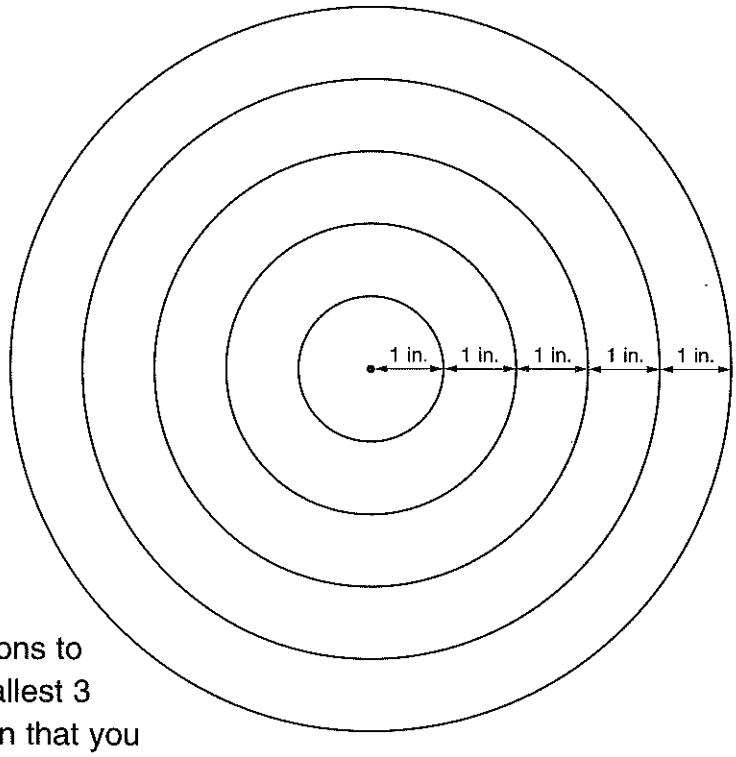
Finding the Area of Concentric Circles



Concentric circles are circles that have the same center, but the radius of each circle has a different length.



The smallest of the 5 concentric circles below has a radius of 1 in. The next largest circle has a radius of 2 in. The next has a radius of 3 in. The next has a radius of 4 in., and the largest circle has a radius of 5 in. The distance from the edge of one circle to the next larger circle is 1 in.



1. Use colored pencils or crayons to shade the region of the smallest 3 circles red. Shade the region that you can see of the next circle yellow, and the region that you can see of the largest circle orange.

Which region has the greater area, the red region or the orange region?

_____

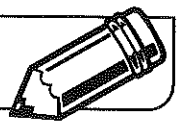
2. **a.** How can you change the distance between the circles to make the area of the yellow region equal to the area of the red region? Explain your answer on the back of this page.

b. How can you change the distance between the circles to make the area of the yellow region equal to the area of the orange region? Explain your answer on the back of this page.

Name Date Time

LESSON 10•4

Solving Rate Problems



Rate describes a relationship between two quantities with different units. Rate tells how many of one type of thing there are for a certain number of another type of thing. Rates are often expressed with phrases that include the word *per.* For example, miles per hour, cost per ounce, or books per student.

One example of rate is speed. A basic formula is distance = rate * time. Multiplication can be used for many different problems involving rates. For example, distance = rate * gallons, total cost = rate * ounces, or total books = rate * students.

To solve a problem using a formula, first replace variables with the known values.

Example:

Maribel can travel 5 miles per hour on her skateboard. How far will she travel in 2 hours?

distance = rate * time	*d*	=	*r*	*	*t*
distance = 5 miles per hour * 2 hours	10	=	5	*	2
distance = 10 miles					

Maribel can travel 10 miles.

Use the formula to solve the following problem.

1. Samuel's go-kart can travel 357 miles on 14 gallons of gas. His go-kart travels how many miles per gallon?

distance = rate * gallons of gas	*d*	=	*r*	*	*g*
distance = miles per gallon * 14 gallons of gas	____	=	____	*	____
rate = _____					

2. Samuel's go-kart can travel _____ miles per gallon of gas.

   Explain your solution.

_____

_____

_____