Topic 1

LESSON 1.2a

That's a Spicy Pizza

7.G.4

Objective: Area of Circles

Warm-Up

Determine a unit rate for each situation.

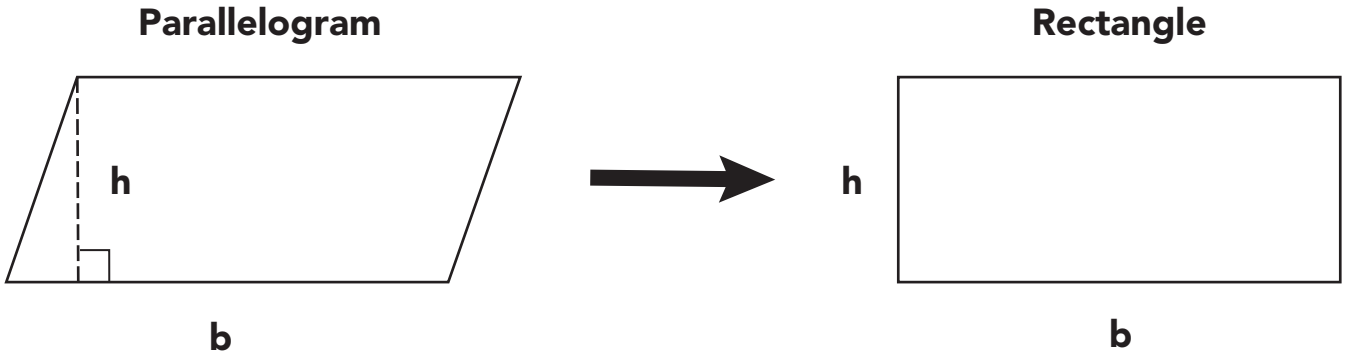
1. $38.40 for 16 gallons of gas

2. 15 miles jogged in 3.75 hours

3. $26.99 for 15 pounds

What Changed? What Stayed the Same?

The length of the base and height are the same in the parallelogram and rectangle shown.



1. How could you rearrange the parallelogram to create the rectangle?

2. What is the area of each figure

EXPLORE 1

Deriving the Area Formula

In the last lesson you derived formulas for the distance around a circle. In this lesson you will investigate the space within a circle. Use the circle at the end of the lesson that is divided into 4, 8, and 16 equal parts.

1. Follow the steps to decompose the circle and compose it into a new figure.

a. First, cut the circle into fourths and arrange the parts side by side so that they form a shape that looks like a parallelogram.

b. Then cut the circle into eighths and then sixteenths. Each time, arrange the parts to form a parallelogram.

2. Analyze the parallelogram you made each time.

a. How did the parallelogram change as you arranged it with the smaller equal parts of the same circle?

b. What would be the result if you built the parallelogram out of 40 equal circle sections? What about 100 equal circle sections?

c. Represent the approximate base length and height of the parallelogram in terms of the radius and circumference of the circle.

d. Use your answers to part (c) to determine the formula for the area of the parallelogram.

e. How does the area of the parallelogram compare to the area of the circle?

f. Write a formula for the area of a circle.

3. Use different representations for π to calculate the area of a circle.

a. Calculate the area of each circle with the given radius. Round your answers to the nearest ten-thousandths, if necessary.

Value for π	r = 6 units	r = 1.5 units	r = $\frac{1}{2}$ units
π			
Use the π Key on a Calculator			
Use 3.14 for π			
Use $\frac{22}{7}$ for π			

b. Compare your area calculations for each circle. How do the different values of π affect your calculations?

4. Suppose the ratio of radius lengths of two circles is 1 unit to 2 units.

a. What is the ratio of areas of the circles? Experiment with various radius lengths to make a conclusion.

b. If the length of the radius of a circle is doubled, what effect will this have on the area?

Name: _____ Date: _____ Class: _____

Homework HW

LESSON 1.2a
That's a Spicy Pizza

Objective

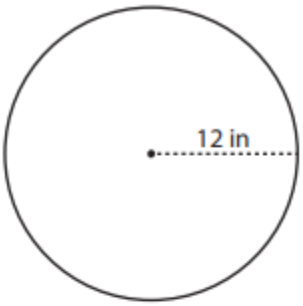
Area of Circles

Find the area of each circle in terms of π.

1)

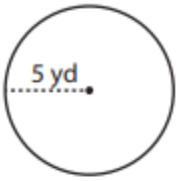
Area = _____

2)



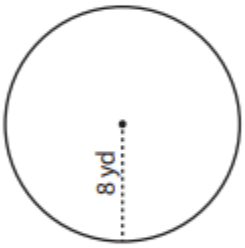
Area = _____

3)



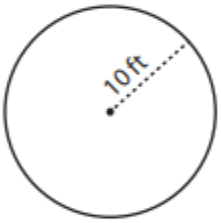
Area = _____

4)



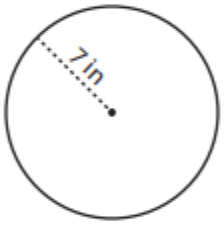
Area = _____

5)



Area = _____

6)

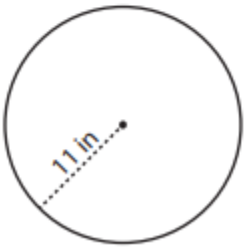


Area = _____

7)

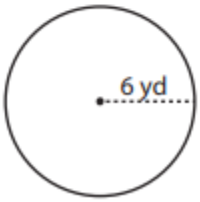
Area = _____

8)



Area = _____

9)



Area = _____