

Objective Area of Circles

Warm-Up



Determine a unit rate for each situation.

1. \$35.20 for 21 gallons of gas

2. 18 miles jogged in 4.5 hours

3. \$31.99 for 17 pounds



Circumference or Area



The circumference of a circle is the distance around the circle, while the area of a circle is the amount of space contained inside the circle. When solving problems involving circles, it is important to think about what you are trying to determine.

1. A city park has a large circular garden with a path around it. The diameter of the garden is 60 feet.

a. Gina likes to walk along the circular path during her lunch breaks. How far does Gina walk if she completes one rotation around the path?

b. Jason works for the City Park Department. He needs to spread plant food all over the garden. What is the area of the park he will cover with plant food?

2. Samantha is making a vegetable pizza. First, she presses the dough so that it fills a circular pan with a 16-inch diameter and covers it with sauce. What is the area of the pizza Samantha will cover with sauce?

3. Members of a community center have decided to paint a large circular mural in the middle of the parking lot. The radius of the mural is to be 11 yards. Before they begin painting the mural, they use rope to form the outline. How much rope will they need?



Unit Rates and Circle Area



Talarico's Pizza has a large variety of pizza sizes.

	Small	Medium	Large	X-Large	Enorme	Ginorme	Colossale
Diameter	10 in.	13 in.	16 in.	18 in.	24 in.	28 in.	36 in.
Slices	6	8	10	12	20	30	40
Cost	\$6.99	\$9.99	\$12.99	\$14.99	\$22.99	\$28.99	\$54.99

Lina and Michael are trying to decide whether to get two pizzas or one Ginorme pizza. They ask themselves, "Which choice is the better buy?"

They each calculated a unit rate for the Ginorme pizza.

Lina



$$1 \text{ Ginorme: } \frac{\pi(14)^2}{28.99} = \frac{196\pi}{28.99} \approx 21.24 \text{ square inches per dollar}$$

The Ginorme gives you approximately 21.24 square inches of pizza per dollar.

Michael



$$1 \text{ Ginorme: } \frac{28.99}{14^2 \pi} = \frac{28.99}{196\pi} \approx \$0.05 \text{ per square inch}$$

The Ginorme costs approximately \$0.05 for each square inch of pizza.

1. Consider Lina's and Michael's work.

a. Explain why Lina's and Michael's unit rates are different but still both correct.

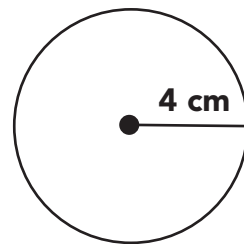
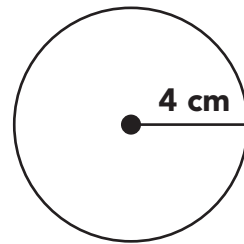
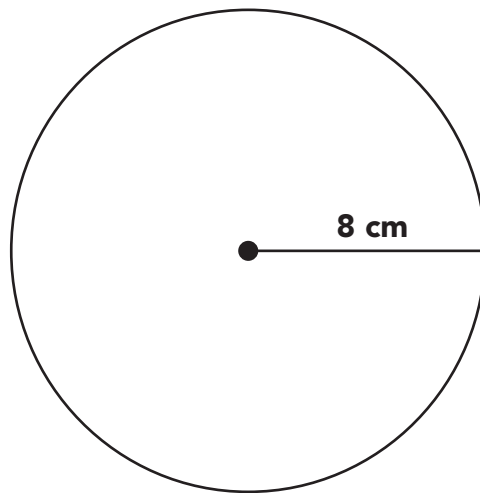
b. How would you decide which pizza was the better buy if you calculated the unit rate for each pizza using Lina's method versus Michael's method.

2. Which of the seven sizes of pizza from Talarico's Pizza is the best buy? Explain your answer.

**Show You
KNOW**

Go With the Flow

1. Which pipe configuration can deliver more water to residents, one 8-cm pipe or two 4-cm pipes? Show your work and explain your reasoning.





LESSON 1.2b

That's a Spicy Pizza



Objective **Area of Circles**

Practice

Determine the area of the circle, given each measurement. Use 3.14 for π and round to the nearest hundredth.

1. Diameter: 8 in.
2. Radius: 10 in.
3. Radius: 1.5 ft
4. Diameter: 8.8 yd
5. Diameter: $1\frac{3}{4}$ in.
6. Radius: $2\frac{1}{2}$ cm

Determine which pizza is the better buy in each situation.

7. The 10-inch diameter pizza for \$8.99 or the 6-inch diameter pizza for \$5.
8. The large 16-inch diameter pizza for \$12.99 or the \$26 X-large with a radius of 16 in.
9. The 12-inch diameter pizza for \$12.50 or the 20-inch diameter pizza for \$17.50.
10. The 4-inch radius pizza for \$3 or the 8-inch radius pizza for \$14.
11. Two 12-inch diameter pizzas for \$12.98 or one large 14-inch diameter pizza for \$7.99.
12. The 1-inch diameter pizza bite for \$1 or the 10-inch diameter pizza for \$10.

