



CCSS: 7.EE.B.4: Use variables to ... construct simple equations ... 7.G.B.4: Know the formulas for the area and circumference of a circle and use them to solve problems ... Also, 7.EE.B.4a and 7.G.A.2.

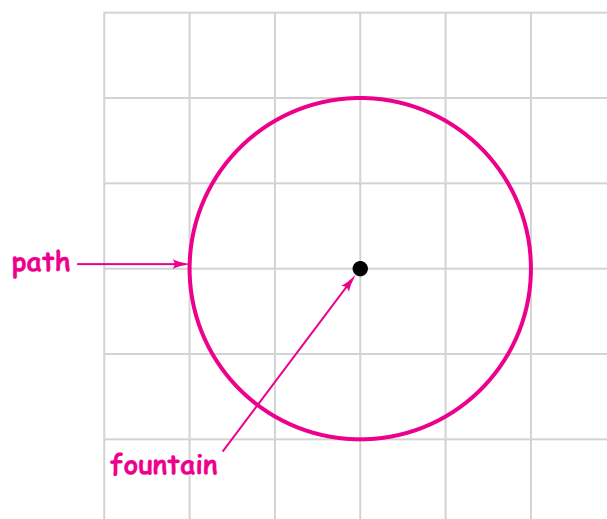
Launch

SAMPLE SOLUTIONS ARE SHOWN BELOW.

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A landscaper wants to build a flower garden with a fountain in the center and a path on the outside. The landscaper wants the fountain to be same distance from anywhere on the path.

Draw the garden plan. Explain how it matches what the landscaper wants.



The flower garden needs to be a circle with a fountain in the middle.

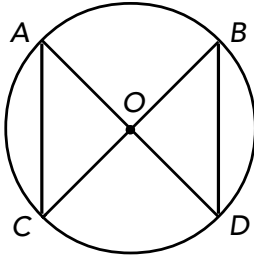
Reflect Could the garden path be any shape and still match what the landscaper wants? Explain.

Sample: No, the path could only be a circle. A circular path is the only shape for which the fountain at the center of the circle is the same distance from every point on the path.

Got It?

PART 1 Got It mc

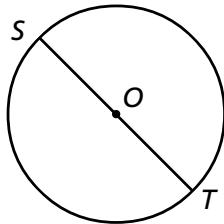
► How many radii are shown?



4

PART 2 Got It mc

► In the diagram, $ST = 4\frac{1}{3}$ ft. What is SO ?

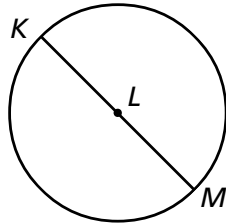


$2\frac{1}{6}$ ft

Got It?

PART 3 Got It mc

► If $KM = 2x - 4$ and $LM = 12$, what is the value of x ?



14

Discuss with a classmate

Name the parts of the circle that are key to solving this problem.

Identify each of these parts in the diagram.

How do you use what you know about solving equations and the parts of the circle that are given to solve the problem?

Close and Check



Focus Question

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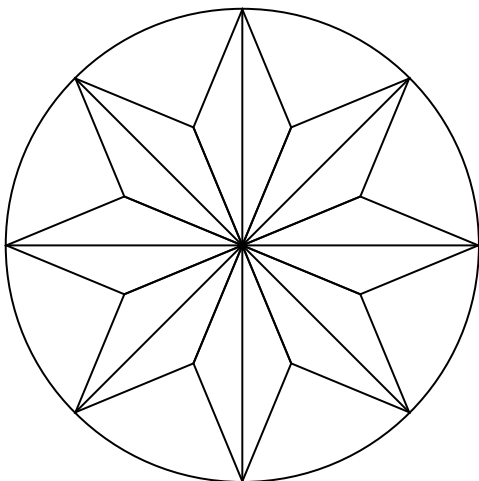
What are the relationships among the parts of a circle?

Sample: The diameter includes the center and is twice the length of the radius. The radius connects the center with a point on the circle.



Do you know HOW?

1. How many radii are shown?



8

2. The radius of the circle above is 14.5 cm. Find the diameter.

29 cm

3. The diameter of a circle is $7x + 5$ and the radius is 13. Find the value of x .

3



Do you UNDERSTAND?

SAMPLE SOLUTIONS ARE SHOWN BELOW.

4. **Reasoning** If the length of the radius of a circle is increased 3 times, what happens to the length of the diameter? Write an equation to show how you know.

The diameter also increases
3 times. $d = 2r$; $3(d) = 3(2r)$

5. **Writing** A circular path surrounds a dog park. The developers want to build a supply shed in the center of the park. How can they determine where to build the shed?

They can measure the
distance straight across
the park and divide it in half.
The solution is the distance
to the center of the park.