

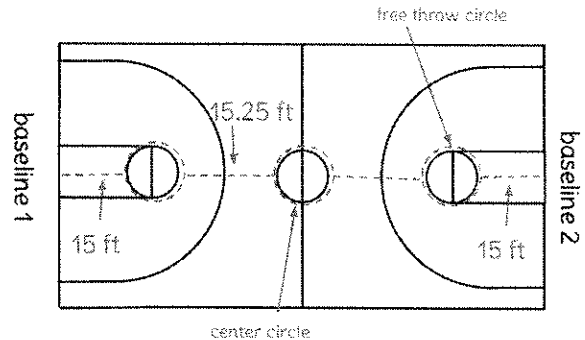
Find the circumference of a circle by evaluating the formula.

Name: _____

Date: _____

1. On an NBA basketball court, the free throw line is the diameter of the free throw circle. The radius of the free throw circle is 4 feet, 9 inches. The center circle has a diameter of 12 ft.

a. Which circle has a larger circumference? Show your work and explain how you found your answer.



2. Basketball teams will run drills at practice using the court in order to improve their endurance. The distance between the baseline and free throw circle is 15 ft. The distance between the free throw circle and center circle is 15.25 ft. The center circle has a diameter of 12 ft. and the free throw circle has a radius of 4 ft., 9 inches.

a. Below are the directions for a running drill:

- Start at baseline 1.
- Run to first free throw circle. Run around it $1\frac{1}{2}$ times.
- Run to center circle. Run around it $\frac{1}{2}$ times.
- Run to second free throw circle. Run around it $1\frac{1}{2}$ times.
- Run to baseline 2. Turn around and run back to baseline 1.

If you repeat this drill three times, what total distance will you run? Show all math and also use words to explain your math.

Solve using formulas + showing all work. Be specific in your writing pieces.

14. a. Find the circumference of a circle with a diameter of 8 in. Use 3.14 for π . Is your answer exact or an approximation?
- b. Most calculators give the value of π as 3.141592654. If you used this value of π in part a, would your answer be exact? Why or why not?

- c. The circumference of a circle with a diameter of 8 in. could be expressed as 8π in., leaving the symbol π in the answer. Why do you think this might sometimes be an advantage?
15. a. Suppose that the radius of a large wheel is three times the radius of a small wheel. How is the circumference of the large wheel related to the circumference of the small wheel? How do you know?
- b. If the radius of the small wheel is 10 in., what is its circumference? How far would it travel along the ground in one complete rotation?

Making Connections

16. a. The diameter of the moon is approximately 2,160 miles. What is its circumference? Give your answer to the nearest hundred miles.
- b. The average distance of the moon from Earth is about 240,000 miles. Assuming that the moon travels in a circular orbit around Earth, about how far does the moon travel in one complete orbit? Give your answer to the nearest ten thousand miles. Explain how you solved this problem.
- c. What are some reasons why your answer in part b is not exact?

