Just In Time Quick Check
Standard of Learning (SOL) 6.7b

Strand: Measurement and Geometry

Standard of Learning (SOL) 6.7b
The student will solve problems, including practical problems, involving circumference and area of a circle.

Grade Level Skills:
- Solve problems, including practical problems, involving circumference and area of a circle when given the length of the diameter or radius.

Just in Time Quick Check

Just in Time Quick Check Teacher Notes

Supporting Resources:
- VDOE Mathematics Instructional Plans (MIPS)
    - 6.7ab - Going the Distance (Word) / PDF Version
- VDOE Algebra Readiness Remediation Plans
    - Discover Pi (Word) / PDF
- VDOE Word Wall Cards: Grade 6 (Word) | (PDF)
    - Pi
    - Circumference
    - Area of a circle
- VDOE Rich Mathematical Tasks: Designing a Dog Park Task (Includes circles as an extension)
    - 6.7 Designing a Dog Park Task Template (Word) / PDF Version
    - 6.7 Designing a Dog Park Student Version of Task (Word) / PDF Version
    - 6.7 Designing a Dog Park Anchor Papers (Word) / PDF Version
    - 6.7 Designing a Dog Park Anchor Papers Scoring Rationales (Word) / PDF Version
- Desmos Activity
    - 6.7b Area of Circles

Supporting and Prerequisite SOL: 6.7a, 5.8a, 5.8b, 5.10, 4.7

SOL 6.7b - Just in Time Quick Check

1. Kim made a circular flower bed in her yard. The diameter of the flower bed is 6 feet.

    a) What is the area of her flower bed?

    b) What is the circumference of her flower bed?

2. Marcus has a circular rug in his room. If the diameter of the rug is equal to the length of the bedroom floor, what is the circumference of his rug?
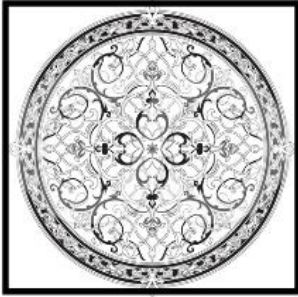
    12 ft.

3. Andy is building a fish pond in the shape of a circle at his house. He needs the fish pond to fit in a circular area with an area of 20 square feet. If the diameter of the fish pond is 5 feet, will his fish pond fit? How do you know?

4. Maria is building a circular pool. The radius of the pool will be 7 feet. She will put a cover on the pool and build a fence around the pool.

    • How much material will she need to cover the top of the pool?

    • What is the minimum number of feet of fence will she need?

1. Kim made a circular flower bed in her yard. The diameter of the flower bed is 6 feet.

    a) What is the area of her flower bed?

    b) What is the circumference of her flower bed?

    A common error that some students make is using the diameter to find both the area and circumference. They do not find the radius prior to computing the area. Teachers may wish to review the word wall vocabulary from fifth grade that includes radius, diameter, and circumference to help students distinguish between the terms. Additionally, having students label a drawing to visualize the radius and diameter may help, as well as encouraging students to use a consistent problem solving strategy to identify information given and what information is needed to solve the problem.

2. Marcus has a circular rug in his room. If the diameter of the rug is equal to the length of the bedroom floor, what is the circumference of his rug?
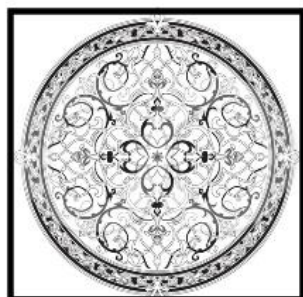
    12 ft.

    Because the diameter is not labeled on the picture, a student may have difficulty equating the length of the bedroom floor with the diameter of the circle. The student may need more experiences with drawing and labeling the parts of the circle, and comparing those to the measurements given for the square. Encourage the student to measure with a ruler both the square length and diameter to help them see they are equivalent.

3. Andy is building a fish pond in the shape of a circle at his house. He needs the fish pond to fit in a circular area of 20 square feet. If the diameter of the fish pond is 5 feet, will his fish pond fit? How do you know?

One common error students make is not dividing the diameter by 2 to find the radius prior to using the formula for area. Another common error students may make is multiplying the radius times two rather than squaring it to find the area. This may indicate the student has not conceptualized that the area of a circle measures the number of square units that occupy the space. A review of exponents and perfect squares may assist in this misconception. Additionally, students may need more experiences in using grid paper to estimate the area of circles to assist them in understanding that although the figure is a circle, the area still is the number of square units that occupy the space.

4. Maria is building a pool. The radius of the pool will be 7 feet. She will put a cover on the pool and build a fence around the pool.

- How much material will she need to cover the top of the pool?

- What is the minimum number of feet of fence will she need?

Some students may have difficulty determining which situation is area and which situation is circumference. This may indicate that the student needs more experiences with looking at real life situations and determining which situations indicate area, and which situations indicate circumference. Additionally, students commonly use the incorrect units for area vs circumference. They will use linear units for area and square units for circumference. Participating in hands-on experiences where students are measuring circumference with string or bendable wax sticks, and estimating area with grid paper will assist students in conceptualizing the appropriate units of measure.