Name _____ Class _____ Date _____

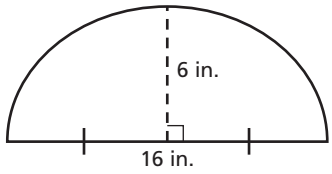
Performance Tasks

COMMON CORE

CC.9-12.G.SRT.8
CC.9-12.G.C.2
CC.9-12.G.GPE.1

★ **1.** A circular table has a diameter of 48 inches. A carpenter is remaking it into a square table. To the nearest tenth of an inch, what is the greatest possible side length of the square table? Explain.

★ **2.** A moving company needs to replace a circular glass mirror that it broke during a move. The dimensions of a piece of the broken mirror are shown in the figure. What was the diameter of the original mirror? Round your answer to the nearest tenth of an inch.



★★ **3.** A graphic artist is using a coordinate plane to design a company logo. The logo has an equilateral triangle inscribed in a circle. The circle lies in Quadrant I, is tangent to the x- and y-axes, and has a radius of 10 units. One side of the triangle is parallel to the y-axis, and one vertex is at (20, 10).

a. Write the equation for the circle.

b. What is the length of the sides of the inscribed triangle? Round your answer to the nearest hundredth of a unit and show your work.

c. Use the fact that the base opposite the vertex at (20, 10) is parallel to the y-axis, and your result from part **b** to find the coordinates of the other two vertices. Round the coordinates to the nearest hundredth of a unit and show your work. (*Hint*: The vertices will be the same distance above and below a horizontal line passing through (20, 10)).

continued

★★★ **4.** An artist is using a coordinate plane to plan a string design for a wall. The artist plans to hammer a nail at each vertex of a regular hexagon. Then the artist will use string to connect the vertices to make the hexagon shape. The artist starts with a circle centered at the origin and places the first vertex at (8, 0).

a. Where are the other vertices? Write coordinates in radical form, if necessary.

b. Not considering knots, what is the minimum amount of string the artist needs to outline the hexagon and connect all the diagonals? Round to the nearest tenth.