

## Arc Length and Area of Sectors Practice

1.

The minute hand of a clock is 1.2 cm long. How far does the tip of the minute hand travel in 40 minutes?

*5.03 cm*

2.

Find the radian measure of angle  $\theta$ , if  $\theta$  is a central angle in a circle of radius  $r = 4$  inches, and  $\theta$  cuts off an arc of length  $s = 12\pi$  inches.

*$3\pi$*

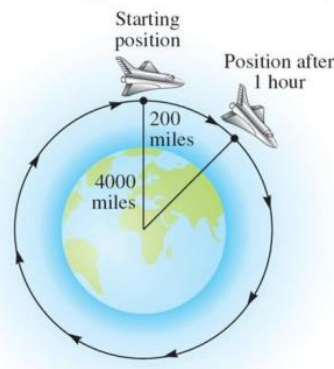
3.

Give the length of the arc cut off by a central angle of 2 radians in a circle of radius 4.3 inches

*8.6 inches*

4.

A space shuttle 200 miles above the earth is orbiting the earth once every 6 hours. How long, in hours, does it take the space shuttle to travel 8,400 miles? (Assume the radius of the earth is 4,000 miles.) Give both the exact value and an approximate value for your answer.



*$\frac{6}{\pi}$  or 1.91 miles*

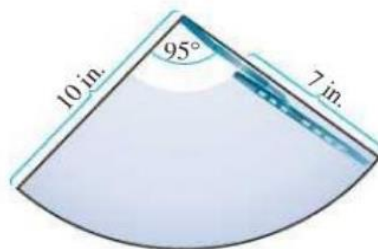
5.

The pendulum on a grandfather clock swings from side to side once every second. If the length of the pendulum is 4 feet and the angle through which it swings is  $20^\circ$ . Find the total distance traveled in 1 minute by the tip of the pendulum on the grandfather clock.

*83.8 feet*

6.

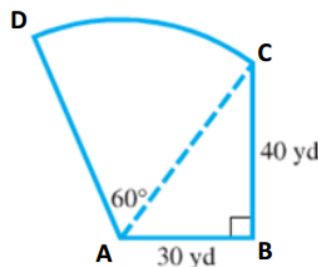
The total arm and blade of a single windshield wiper was 10 in. long and rotated back and forth through an angle of  $95^\circ$ . The shaded region in the figure is the portion of the windshield cleaned by the 7-in. wiper blade. What is the area of the region cleaned?



*42.3 inch<sup>2</sup>*

7.

A frequent problem in surveying city lots and rural lands adjacent to curves of highways and railways is that of finding the area when one or more of the boundary lines is the arc of the circle. Find the area of the lot.



*1909 yd<sup>2</sup>*