

# Geometry - Lesson 2

## Area of Circles

AREA IS THE SPACE INSIDE A SHAPE

The area  $A$  of a circle equals the product of pi ( $\pi$ ) and the square of its radius  $r$ .

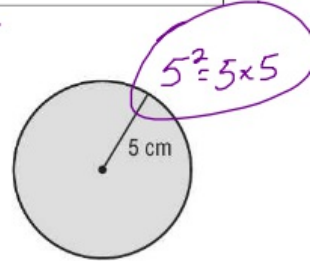
$$A = \pi r^2$$

### Example 1

Find the area of the circle. Use 3.14 for  $\pi$ .

$A = \pi r^2$	Area of circle
$A \approx 3.14 \cdot 5^2$	Replace $\pi$ with 3.14 and $r$ with 5.
$A \approx 3.14 \cdot 25$	$5^2 = 5 \cdot 5 = 25$
$A \approx 78.5$	

AREA =  $\pi \times r^2$   
 $A \approx 3.14 \times 25$   
 $A \approx 78.5 \text{ cm}^2$



The area of the circle is approximately 78.5 square centimeters.

The formula for the area of a semicircle, or half a circle, is  $A = \frac{1}{2}\pi r^2$ .

### Example 2

Find the area of a semicircle that has a diameter of 9.4 millimeters. Use 3.14 for  $\pi$ . Round to the nearest tenth.

$A = \frac{1}{2}\pi r^2$	Area of semicircle
$A \approx \frac{1}{2} \cdot 3.14 \cdot 4.7^2$	Replace $\pi$ with 3.14 and $r$ with $9.4 \div 2$ or 4.7.
$A \approx 34.7$	Multiply.

The area of the semicircle is approximately 34.7 square millimeters.

### Exercises

Find the area of each circle. Round to the nearest tenth. Use 3.14 or  $\frac{22}{7}$  for  $\pi$ .

1.  $r = 7$   
 $A = 3.14(7)^2$   
 $3.14(49)$   
 $153.9 \text{ in}^2$   
 153.86

2.  $r = 12.5$   
 $A = 3.14(12.5)^2$   
 $3.14(156.25)$   
 $490.6 \text{ mm}^2$   
 490.625

3.  $r = 12$

Find the area of each semicircle. Round to the nearest tenth. Use 3.14 or  $\frac{22}{7}$  for  $\pi$ .

4.  $r = 14$   
 $A = 3.14(14)^2$   
 $3.14(196)$   
 $615.44 \text{ m}^2$   
 $\frac{615.44}{2} = 307.72$   
 AREA OF THE FULL CIRCLE → 615.44 m<sup>2</sup>  
 307.7 m<sup>2</sup>

5.  $r = 1.5$

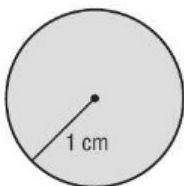
# Geometry - Lesson 2 Skills Practice

## Area of Circles

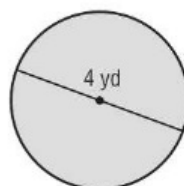
Find the area of each circle. Round to the nearest tenth.

Use 3.14 or  $\frac{22}{7}$  for  $\pi$ .

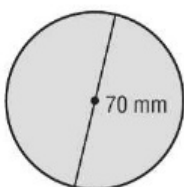
1.



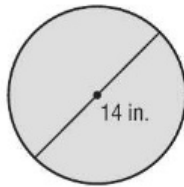
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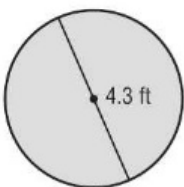
3.



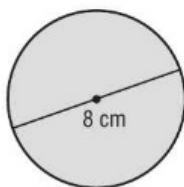
4.



5.



6.



7. radius = 5.7 mm

8. radius = 8.2 ft

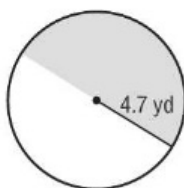
9. diameter = 3 in.

10. diameter = 15.6 cm

Find the area of each semicircle. Round to the nearest tenth.

Use 3.14 for  $\pi$ .

11.



12.

