NAME _____ DATE _____ PERIOD _____

Geometry - Lesson ~~2~~ 6

Area of Circles

AREA = πr^2 (A = 3.14 × r × r)

$3^2 = 3 \times 3 = 9$

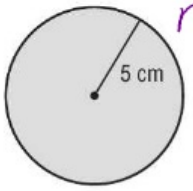
$4^2 = 4 \times 4 = 16$

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

$$A = \pi r^2$$

Example 1

Find the area of the circle. Use 3.14 for π.



r = 5

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

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 π. Round to the nearest tenth.

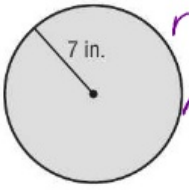
$A = \frac{1}{2}\pi r^2$	Area of semicircle
$A \approx \frac{1}{2} \cdot 3.14 \cdot 4.7^2$	Replace π with 3.14 and r with 9.4 ÷ 2 or 4.7.
$A \approx 34.7$	Multiply.

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 π.

1.



r = 7

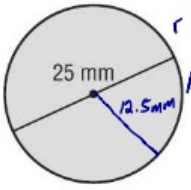
A = 3.14(7)(7)

3.14(49)

153.93

153.9 in²

2.



r = 12.5

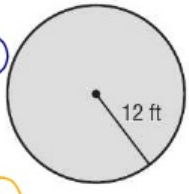
A = 3.14(12.5)(12.5)

3.14(156.5)

490.87

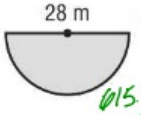
490.9 mm²

3.



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

4.



r = 14

A = 3.14(14)(14)

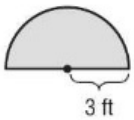
3.14(196)

615.75

$\frac{615.75}{2}$ = 307.87

307.9 m²

5.



Pi is an irrational number, it never ends, never repeats

Pi = Circumference / Diameter

Geometry - Lesson 2 Skills Practice

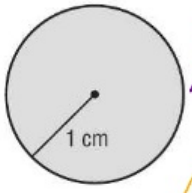
Area of Circles

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

$A = \pi r^2 = \pi \times r \times r = r \times r \times \pi$

$r = \frac{d}{2}$

1.



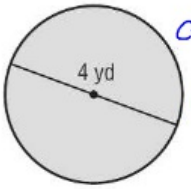
r = 1 π = 3.14

A = 1 × 1 × 3.14

= 3.14

A = 3.1 cm²

2.



d = 4, r = 2

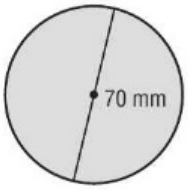
A = 2 × 2 × 3.14

4 × 3.14

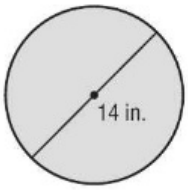
12.56

A = 12.6 yd²

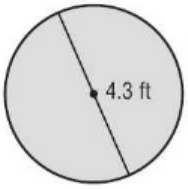
3.



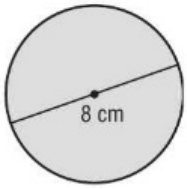
4.



5.



6.



7. radius = 5.7 mm

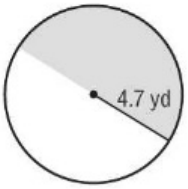
8. radius = 8.2 ft

9. diameter = 3 in.

10. diameter = 15.6 cm

Find the area of each semicircle. Round to the nearest tenth.
Use 3.14 for π.

11.



12.