

e: Key

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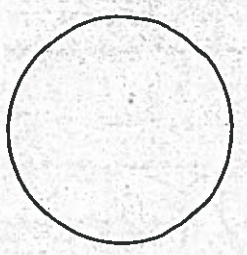
Main Ideas/Questions

Notes/Examples

CIRCLE

round plane figure whose boundary consists of points equidistant from the center

PARTS OF A CIRCLE



Center: given point from which all points on a circle are the same distance

Radius: the distance from the center of the circle to the outside

Diameter: the distance from one side of the circle through the center to the other side

Circumference: the distance around the circle

FORMULAS

AREA & Circumference


AREA OF A CIRCLE:

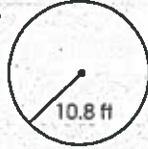
$$A = \pi r^2$$

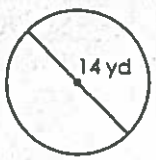
CIRCUMFERENCE OF A CIRCLE:

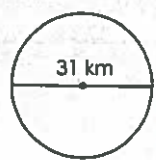
$$C = 2\pi r \text{ or } C = \pi d$$

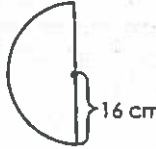
Find the area of each circle. Round to the nearest tenth.


1.  $A = \pi(3)^2$
 $A = 9\pi$
 $A = 28.3 \text{ m}^2$

2.  $A = \pi(10.8)^2$
 $A = \pi(116.64)$
 $A = 366.4 \text{ ft}^2$

3.  $A = \pi(7)^2$
 $A = 49\pi$
 $A = 153.9 \text{ yd}^2$

4.  $A = \pi(15.5)^2$
 $A = 754.8 \text{ km}^2$

5.  $A = \frac{\pi r^2}{2}$
 $A = \frac{\pi(16)^2}{2}$
 $A = 402.1 \text{ cm}^2$

6.  $A = \frac{\pi(11.3)^2}{2}$
 $A = 200.6 \text{ in}^2$

Half of a circle is called a **Semi-circle**

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

7.



$$C = 2\pi(r)$$

$$C = 106.8 \text{ mm}$$

8.



$$C = 2\pi(3.9)$$

$$C = 24.5$$

9.



$$C = \pi(19)$$

$$C = 59.7 \text{ cm}$$

10.



$$C = \pi(8.4)$$

$$C = 26.4$$

Applications

11. Find the radius of a circle if its area is 706.9 square millimeters.

$$\frac{706.9}{\pi} = \frac{\pi r^2}{\pi}$$

$$\sqrt{225.01} = r^2$$

$$r = 15 \text{ mm}$$

12. If the area of a circle is 28.27 square inches, find the length of its diameter.

$$\frac{28.27}{\pi} = \frac{\pi r^2}{\pi}$$

$$\sqrt{8.998} = r^2$$

$$r = 3 \text{ in}$$

13. If the circumference of a circle is 41.8 feet, find the diameter of the circle.

$$\frac{41.8}{\pi} = \frac{2\pi r}{\pi}$$

$$d = 13.3 \text{ ft}$$

14. The circumference of a circle is 50.24 centimeters. Find its radius.

$$\frac{50.24}{2} = \frac{2\pi r}{2}$$

$$\frac{25.12}{\pi} = \frac{\pi r}{\pi}$$

$$r = 8 \text{ cm}$$

15. If the tire on a bike has a radius of 12 inches, how far will the bike travel in 100 rotations?

$$C = 2\pi r$$

$$C = 2\pi(12)$$

$$C = 24\pi$$

$$C = 75.4 \text{ in}$$

$$\times 100$$

$$7540 \text{ in}$$

16. Lisa has a circular garden with a diameter of 17.5 feet. If she uses 3 teaspoons of fertilizer for every 30 square feet of garden, how much fertilizer will she need to cover the garden?

$$A = \pi(8.75)^2$$

$$A = 240.5 \text{ ft}^2$$

4 scoops

24 teaspoons