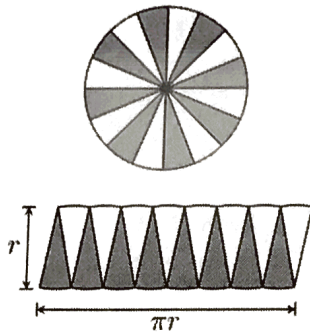


Pre-Algebra

Aim: How do you find the Area of a circle?

Where did the formula for calculating the area of a circle come from?



Circumference Formula

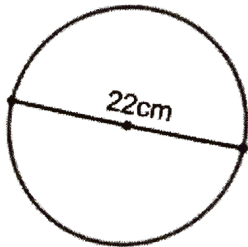
$$C = \pi d$$

Area Formula

$$A = \pi r^2$$

1. Find the area of the following circles.

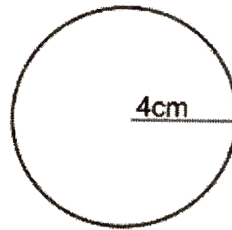
- a. Calculate your answer to the nearest tenth. b. Calculate your answer to the nearest tenth.



$$A = \pi r^2$$

$$A = \pi (11)^2$$

$A = 380.1 \text{ cm}^2$



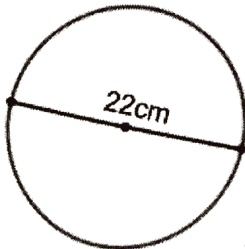
$$A = \pi r^2$$

$$A = \pi (4)^2$$

$A = 50.3 \text{ cm}^2$

- a. Leave your answer in terms of pi.

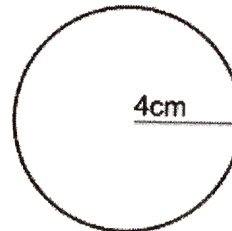
- b. Leave your answer in terms of pi.



$$A = \pi r^2$$

$$A = \pi (11)^2$$

$A = 121\pi \text{ cm}^2$

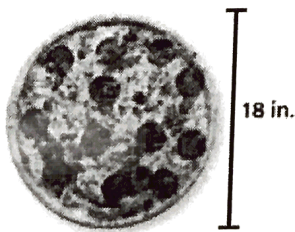


$$A = \pi r^2$$

$$A = \pi (4)^2$$

$A = 16\pi \text{ cm}^2$

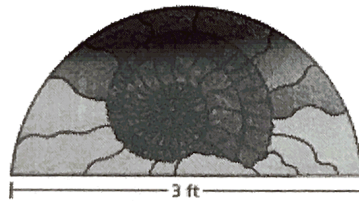
2. Find the area of each figure. Round your answer to the nearest tenth.



$$A = \pi r^2$$

$$A = \pi (9)^2$$

$A = 254.5 \text{ in}^2$



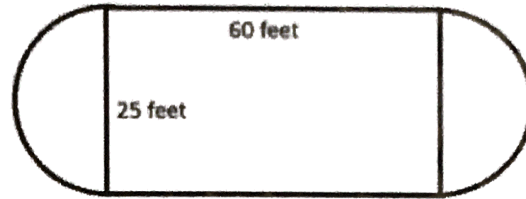
$$A_{\Delta} = \pi r^2$$

$$A_{\Delta} = \pi (1.5)^2$$

$$A_{\Delta} = 7.0685 \dots$$

$A_{\Delta} = 3.5 \text{ ft}^2$

3. Luis is going to put a basketball court in his backyard, as shown in the diagram below. This basketball court consists of a rectangle and a semicircle at each end.



- a. To the nearest square foot, represent the area of this basketball court.

$$A = lw \qquad A = \pi r^2$$

$$A = (25)(60) \qquad A = \pi(12.5)^2$$

$$A = 1500 \text{ ft}^2 + A = 491 \qquad = \boxed{1991 \text{ ft}^2}$$

- b. To the nearest foot, represent the distance around this basketball court.

$$60 + 60 + 79 \qquad C = \pi d$$

$$\qquad C = \pi(25)$$

$$\qquad C = 79 \qquad \boxed{199 \text{ ft}}$$

Working Backwards

4. A circle's circumference is 30 meters.

- a. What is the diameter?

$$C = \pi d$$

$$\frac{30}{\pi} = \frac{\pi d}{\pi}$$

$$\boxed{9.5 \text{ m} = d}$$

nearest whole: 10 m

- b. What is the radius?

$$\boxed{4.8 \text{ m} = r}$$

nearest whole: 5 m

5. A circle's circumference is ~~30 meters~~ $30\pi \text{ m}$

- a. What is the diameter?

$$C = \pi d$$

$$\frac{30\pi}{\pi} = \frac{\pi d}{\pi}$$

$$\boxed{30 \text{ m} = d}$$

- b. What is the radius?

$$\boxed{15 \text{ m} = r}$$

6. A circle's area is 81π square cm. Find the measure of the circle's diameter.

$$A = \pi r^2$$

$$\frac{81\pi}{\pi} = \frac{\pi r^2}{\pi}$$

$$\sqrt{81} = \sqrt{r^2}$$

$$9 \text{ cm} = r$$

$$\boxed{18 \text{ cm} = d}$$

7. The area of a circle is 59 square feet. To the nearest tenth, what is the radius of the circle?

$$A = \pi r^2$$

$$\frac{59}{\pi} = \frac{\pi r^2}{\pi}$$

$$\sqrt{18.7802} = \sqrt{r^2}$$

$$4.3 = r$$

$$\boxed{4.3 \text{ ft}}$$

Circumference \rightarrow Area

8. The circumference of a circle is 74 cm. Find the area of the circle. Round all values to the nearest whole.

Area \rightarrow Circumference

9. The area of a circle is 100 square meters. Find the circumference of the circle. Round to the nearest tenth.