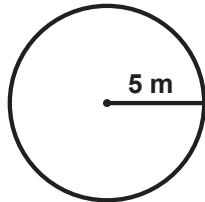


Estimating Circumference and Area

CCA 1

Instructions: A good way to quickly estimate the circumference and area of a circle is to round Pi off to the whole number '3' (instead of using two decimal digits like 3.14). Use $\pi = 3$ to estimate the circumference and area of each of the circles below.

1



$r = 5 \text{ m}$
so
 $d = 10 \text{ m}$

$$C = \pi \times d$$

$$C = 3 \times 10$$

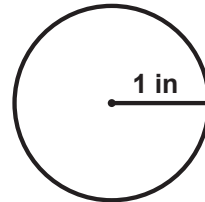
$$C = 30 \text{ m}$$

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

$$A = 3 \times (5 \times 5)$$

$$A = 75 \text{ m}^2$$

2



$r = 1 \text{ in}$
so
 $d = 2 \text{ in}$

$$C = \pi \times d$$

$$C = 3 \times 2$$

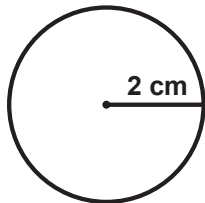
$$C = 6 \text{ in}$$

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

$$A = 3 \times (1 \times 1)$$

$$A = 3 \text{ in}^2$$

3



$r = 2 \text{ cm}$
so
 $d = 4 \text{ cm}$

$$C = \pi \times d$$

$$C = 3 \times 4$$

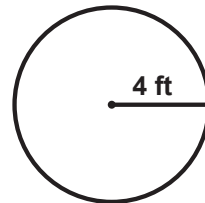
$$C = 12 \text{ cm}$$

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

$$A = 3 \times (2 \times 2)$$

$$A = 12 \text{ cm}^2$$

4



$r = 4 \text{ ft}$
so
 $d = 8 \text{ ft}$

$$C = \pi \times d$$

$$C = 3 \times 8$$

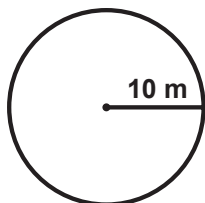
$$C = 24 \text{ ft}$$

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

$$A = 3 \times (4 \times 4)$$

$$A = 48 \text{ ft}^2$$

5



$r = 10 \text{ m}$
so
 $d = 20 \text{ m}$

$$C = \pi \times d$$

$$C = 3 \times 20$$

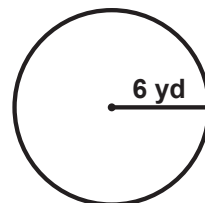
$$C = 60 \text{ m}$$

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

$$A = 3 \times (10 \times 10)$$

$$A = 300 \text{ m}^2$$

6



$r = 6 \text{ yd}$
so
 $d = 12 \text{ yd}$

$$C = \pi \times d$$

$$C = 3 \times 12$$

$$C = 36 \text{ yd}$$

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

$$A = 3 \times (6 \times 6)$$

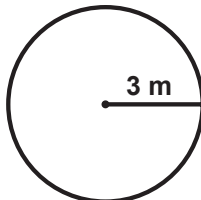
$$A = 108 \text{ yd}^2$$

Calculating Circumference

CCA 2

Instructions: Use the formula you learned in the video to calculate the circumference of each circle below. Use $\pi = 3.14$ and round your answers to two decimal places. You can use a calculator. (Note: Sometimes the problem gives you the radius, but sometimes it gives you the diameter.)

1



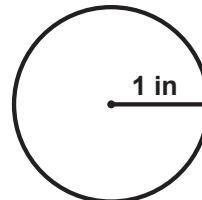
$$d = 3 \times 2 = 6 \text{ m}$$

$$C = \pi \times d$$

$$C = 3.14 \times 6 \text{ m}$$

$$C = 18.84 \text{ m}$$

2



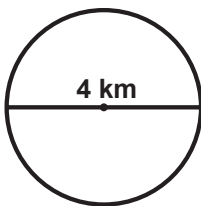
$$d = 1 \times 2 = 2 \text{ in}$$

$$C = \pi \times d$$

$$C = 3.14 \times 2 \text{ in}$$

$$C = 6.28 \text{ in}$$

3

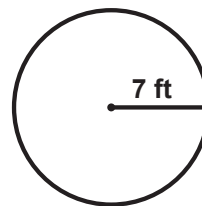


$$C = \pi \times d$$

$$C = 3.14 \times 4 \text{ km}$$

$$C = 12.56 \text{ km}$$

4



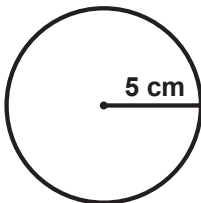
$$d = 7 \times 2 = 14 \text{ ft}$$

$$C = \pi \times d$$

$$C = 3.14 \times 14 \text{ ft}$$

$$C = 43.96 \text{ ft}$$

5



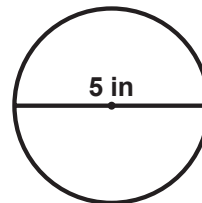
$$d = 5 \times 2 = 10 \text{ cm}$$

$$C = \pi \times d$$

$$C = 3.14 \times 10 \text{ cm}$$

$$C = 31.4 \text{ cm}$$

6

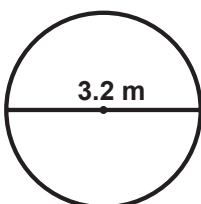


$$C = \pi \times d$$

$$C = 3.14 \times 5 \text{ in}$$

$$C = 15.7 \text{ in}$$

7

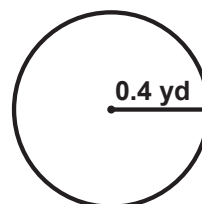


$$C = \pi \times d$$

$$C = 3.14 \times 3.2 \text{ m}$$

$$C = 10.05 \text{ m}$$

8



$$d = 0.4 \times 2 = 0.8 \text{ yd}$$

$$C = \pi \times d$$

$$C = 3.14 \times 0.8 \text{ yd}$$

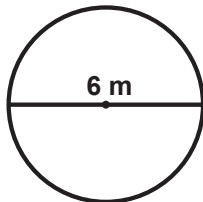
$$C = 2.51 \text{ yd}$$

Calculating Area

CCA 3

Instructions: Use the formula you learned in the video to calculate the area of each circle below. Use $\pi = 3.14$ and round your answers to two decimal places. You can use a calculator. (Note: Sometimes the problem gives you the radius, but sometimes it gives you the diameter.)

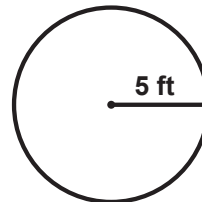
1



$$r = \frac{6}{2} = 3 \text{ m}$$

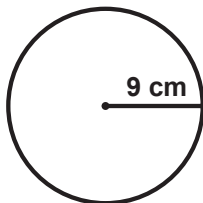
$$\begin{aligned} A &= \pi \times r^2 \\ A &= 3.14 \times (3 \times 3) \\ A &= 28.26 \text{ m}^2 \end{aligned}$$

2



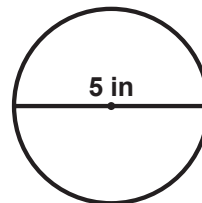
$$\begin{aligned} A &= \pi \times r^2 \\ A &= 3.14 \times (5 \times 5) \\ A &= 78.5 \text{ ft}^2 \end{aligned}$$

3



$$\begin{aligned} A &= \pi \times r^2 \\ A &= 3.14 \times (9 \times 9) \\ A &= 254.34 \text{ cm}^2 \end{aligned}$$

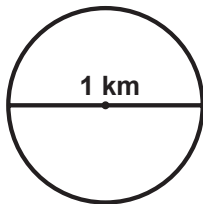
4



$$r = \frac{5}{2} = 2.5 \text{ in}$$

$$\begin{aligned} A &= \pi \times r^2 \\ A &= 3.14 \times (2.5)^2 \\ A &= 19.63 \text{ in}^2 \end{aligned}$$

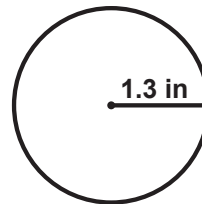
5



$$r = \frac{1}{2} = 0.5 \text{ km}$$

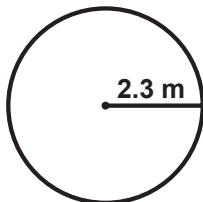
$$\begin{aligned} A &= \pi \times r^2 \\ A &= 3.14 \times (0.5)^2 \\ A &= 0.79 \text{ km}^2 \end{aligned}$$

6



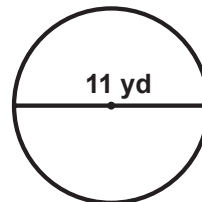
$$\begin{aligned} A &= \pi \times r^2 \\ A &= 3.14 \times (1.3)^2 \\ A &= 5.31 \text{ in}^2 \end{aligned}$$

7



$$\begin{aligned} A &= \pi \times r^2 \\ A &= 3.14 \times (2.3)^2 \\ A &= 16.61 \text{ m}^2 \end{aligned}$$

8



$$r = \frac{11}{2} = 5.5 \text{ yd}$$

$$\begin{aligned} A &= \pi \times r^2 \\ A &= 3.14 \times (5.5)^2 \\ A &= 94.99 \text{ yd}^2 \end{aligned}$$

Calculating Circumference and Area

CCA 4

Instructions: For the following problems, use $\pi = 3.14$. You may use a calculator. If necessary, round your answers to two decimal places.

- 1** A circle has a radius of 1.5 meters.
Find its circumference and area.

$$d = 1.5 \times 2 = 3 \text{ m}$$

$$C = \pi \times d$$

$$C = 3.14 \times 3 = 9.42 \text{ m}$$

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

$$A = 3.14 \times (1.5 \times 1.5) = 7.07 \text{ m}^2$$

- 2** A circle has a diameter of 26 feet.
Find its circumference and area.

$$r = 26 \div 2 = 13 \text{ ft}$$

$$C = \pi \times d$$

$$C = 3.14 \times 26 = 81.64 \text{ ft}$$

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

$$A = 3.14 \times (13 \times 13) = 530.66 \text{ ft}^2$$

- 3** A circle has a diameter of 40 miles.
Find its circumference and area.

$$r = 40 \div 2 = 20 \text{ mi}$$

$$C = \pi \times d$$

$$C = 3.14 \times 40 = 125.6 \text{ mi}$$

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

$$A = 3.14 \times (20 \times 20) = 1,256 \text{ mi}^2$$

- 4** A circle has a radius of 3.5 centimeters.
Find its circumference and area.

$$d = 3.5 \times 2 = 7 \text{ cm}$$

$$C = \pi \times d$$

$$C = 3.14 \times 7 = 21.98 \text{ cm}$$

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

$$A = 3.14 \times (3.5 \times 3.5) = 38.47 \text{ cm}^2$$

- 5** A circle has a diameter of 16 inches.
Find its circumference and area.

$$r = 16 \div 2 = 8 \text{ in}$$

$$C = \pi \times d$$

$$C = 3.14 \times 16 = 50.24 \text{ in}$$

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

$$A = 3.14 \times (8 \times 8) = 200.96 \text{ in}^2$$

- 6** A circle has a radius of 0.3 meters.
Find its circumference and area.

$$d = 0.3 \times 2 = 0.6 \text{ m}$$

$$C = \pi \times d$$

$$C = 3.14 \times 0.6 = 1.88 \text{ m}$$

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

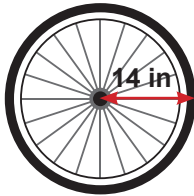
$$A = 3.14 \times (0.3 \times 0.3) = 0.28 \text{ m}^2$$

Circumference and Area - Word Problems

CCA 5

Instructions: For the following problems, use $\pi = 3.14$. You may use a calculator. If necessary, round your answers to two decimal places.

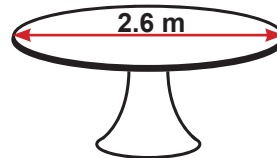
- 1 A bicycle tire has a radius of 14 inches. What is the circumference of the tire?



$$d = 14 \times 2 = 28 \text{ in}$$

$$\begin{aligned} C &= \pi \times d \\ C &= 3.14 \times 28 \text{ in} \\ C &= 87.92 \text{ in} \end{aligned}$$

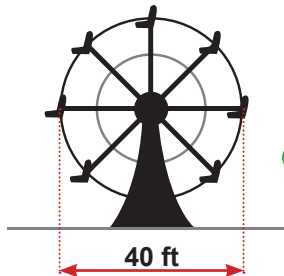
- 2 A round table top has a diameter of 2.6 meters. What is its surface area?



$$r = \frac{2.6}{2} = 1.3 \text{ m}$$

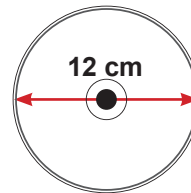
$$\begin{aligned} A &= \pi \times r^2 \\ A &= 3.14 \times (1.3)^2 \\ A &= 5.31 \text{ m}^2 \end{aligned}$$

- 3 A Ferris-Wheel at an amusement park has a diameter of 40 feet. How far would you travel in one revolution? (In other words, find the circumference.)



$$\begin{aligned} C &= \pi \times d \\ C &= 3.14 \times 40 \text{ ft} \\ C &= 125.6 \text{ ft} \end{aligned}$$

- 4 A DVD disc has a diameter of 12 centimeters. What is the surface area of one side of the disc?

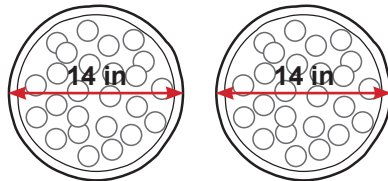


$$r = \frac{12}{2} = 6 \text{ cm}$$

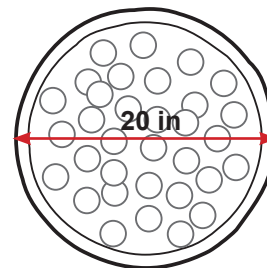
$$\begin{aligned} A &= \pi \times r^2 \\ A &= 3.14 \times (6 \times 6) \\ A &= 113.04 \text{ cm}^2 \end{aligned}$$

- 5 Which has the greatest surface area: two pizzas that have 14 inch diameters or one pizza that has a 20 inch diameter?

$$r = \frac{14}{2} = 7 \text{ in}$$



$$\begin{aligned} A &= \pi \times r^2 \\ A &= 3.14 \times (7 \times 7) \\ A &= 153.86 \text{ in}^2 \\ 2 \times A &= 307.72 \text{ in}^2 \end{aligned}$$



$$r = \frac{20}{2} = 10 \text{ in}$$

$$\begin{aligned} A &= \pi \times r^2 \\ A &= 3.14 \times (10 \times 10) \\ A &= 314 \text{ in}^2 \end{aligned}$$

The 20 inch diameter pizza has a little more surface area than the two 14 inch diameter pizzas combined.