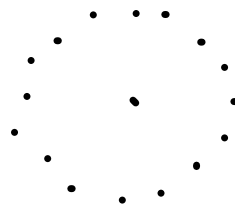


3-29-18

Aim: SWBAT calculate the circumference and area of a circle given its radius or diameter.

HW: Packet Pages 3 - 4

Do Now: Unit 10 Packet



Aim : SWBAT find the circumference and area of a circle given its radius or diameter.

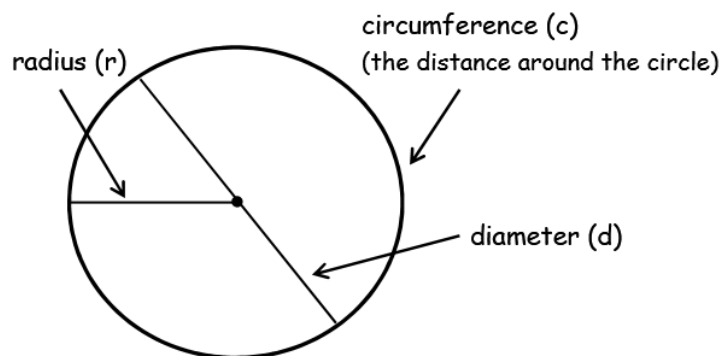
Do Now: Take out your homework (Review of Perimeter and Area) and check your answers on the answer sheet. If you have time, read the notes and Example 1 below.

DEFINITIONS (refer to the diagram below to "see" how the definitions apply to the circle)

Radius - The distance from the center of the circle to any point on the circle.

Diameter - A line segment that goes through the center of the circle and has both endpoints on the circle.

Circumference of a circle - The distance around a circle.



Notes.

The measure of the diameter (d), of a circle is twice the measurement of the radius (r). For example, if the radius of a circle is 8 cm, then its diameter is 16 cm.

To find the **circumference** of a circle, use the formula $C = \pi d$ or $C = 2\pi r$.
(C is the circumference, d is the diameter and r is the radius)

To find the **area** of a circle, use the formula $A = \pi r^2$. (A is the area and r is the radius)

*** We will ALWAYS state our answer FIRST in terms of π (pi), then using our scientific calculator and finally we will round it to the given place (usually tenths or hundredths).

Example 1) Find the circumference and area of a circle with a radius of 7cm.

Circumference

$$C = 2\pi r$$

$$C = 2 \cdot \pi \cdot 7$$

$$C = 14\pi \text{ (answer in terms of } \pi \text{)}$$

$$C = 43.9822... \text{ (answer using scientific calculator)}$$

$$C \approx 43.98 \text{ cm (rounded to nearest hundredth)}$$

$$C \approx$$

Area

$$A = \pi r^2$$

$$A = \pi \cdot (7)^2$$

$$A = 49\pi \text{ (answer in terms of } \pi \text{)}$$

$$A = 153.9380... \text{ (answer using scientific calculator)}$$

$$A \approx 153.94 \text{ cm}^2 \text{ (rounded to nearest hundredth)}$$

$$A \approx$$

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

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

Find the circumference and area of the circle using $C = 2\pi r$ or $C = \pi d$ and $A = \pi r^2$

Express your answers in each of the following forms:

- Step 1: State your answer in terms of π
- Step 2: State your answer using a scientific calculator showing 4 decimal places
- Step 3: Round your answer to the given place and include units.

Example 2) Find the circumference and area of a circle with a diameter of 21 ft.

Circumference	Area
$C = \pi d$ $C = \pi \cdot 21$ $C = 21\pi$	$d = 21$ $r = 10.5$ $A = \pi r^2$ $A = \pi \cdot (10.5)^2$ $A = 110.25\pi$
Answer in terms of π <u>21π ft</u>	Answer in terms of π <u>110.25π ft²</u>
Answer using π button <u>$65.97344 \dots$ ft</u>	Answer using π button <u>$346.36059 \dots$ ft²</u>
Round to the nearest hundredth <u>65.97 ft</u>	Round to the nearest tenth <u>346.4 ft²</u>

You Try! Find the circumference and area of a circle with a radius of $2\frac{1}{2}$ feet.

Circumference	Area
$C = 2\pi r$ $C = 2 \cdot \pi \cdot 2\frac{1}{2}$ $C = 5\pi$	$A = \pi r^2$ $A = \pi (2\frac{1}{2})^2$ $A = 6.25\pi$
Answer in terms of π <u>5π ft</u>	Answer in terms of π <u>6.25π ft²</u>
Answer using π button <u>$15.70796 \dots$ ft</u>	Answer using π button <u>$19.63495 \dots$ ft²</u>
Round to the nearest hundredth <u>15.71 ft</u>	Round to the nearest tenth <u>19.6 ft²</u>

Homework - Finding Area and Circumference

Find the circumference and area of the circle using $C = 2\pi r$ or $C = \pi d$ and $A = \pi r^2$

Express your answers in each of the following forms:

- Step 1: State your answer in terms of π
- Step 2: State your answer using a scientific calculator showing 4 decimal places
- Step 3: Round your answer to the given place and include units.

1) Find the circumference and area of a circle with a radius of 5 cm.

Circumference	Area
Answer in terms of π _____	Answer in terms of π _____
Answer using π button _____	Answer using π button _____
Rounded to the nearest hundredth _____	Rounded to the nearest tenth _____

2) Find the circumference and area of a circle with a diameter of 20 mm.

Circumference	Area
Answer in terms of π _____	Answer in terms of π _____
Answer using π button _____	Answer using π button _____
Rounded to the nearest hundredth _____	Rounded to the nearest tenth _____

3) Find the circumference and area of a circle with a diameter of 7 in.

Circumference	Area
Answer in terms of π _____	Answer in terms of π _____
Answer using π button _____	Answer using π button _____
Rounded to the nearest hundredth _____	Rounded to the nearest tenth _____

4) Find the circumference and area of a circle with a radius of 20 m.

Circumference	Area
Answer in terms of π _____	Answer in terms of π _____
Answer using π button _____	Answer using π button _____
Rounded to the nearest hundredth _____	Rounded to the nearest tenth _____