

## Warmup

Week 1!

$$3/(1 + 2 + 3 + 4 + 5 + 6 + 7)$$

\*\*\*Find your goal from the last 9 weeks on the #goals cabinet and take it down. (You may throw it away).\*\*\*

- 1) Write about how you did with your goal. If you achieved it, explain why. If you did not achieve it, explain why not, and what you could have done differently.
- 2) Write about something interesting that you did over Spring Break.

## TURN IN REVIEW PACKET!!!

- Lunchtime sessions SOON for missing/incomplete/poorly done packets

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## Review: Circles

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Objective:

- Find the area & circumference of circles
- Solve real-world problems involving circles

## Can anyone tell me...

- The mathematical definition of a circle?

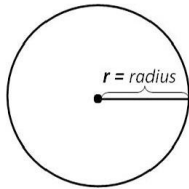
## True or False???

Say whether each statement is true or false. If it is false, draw a counterexample. (A picture that disproves the statement)

- 1) All rectangles with a length of 5 units are congruent.
- 2) All squares with a length of 5 units are congruent.
- 3) All triangles with a height of 5 units are congruent.
- 4) All circles with a radius of 5 units are congruent.

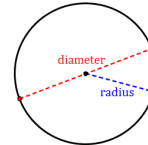
## Circles

- A circle is **completely** defined by the length of its radius.



## Circles

- The diameter is twice the length of the radius.

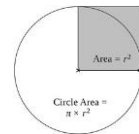


## Circles

- The diameter of a circle will **ALWAYS** fit approximately 3.14 times around the outside of the circle.
- So, the diameter times pi equals the circumference.
- Circumference of a Circle:**
  - $C = \pi d$  or  $C = 2\pi r$

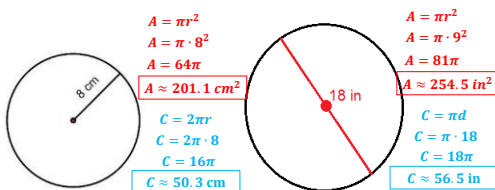
## Area of a circle

- <https://www.youtube.com/watch?v=IzA312pEcTw>
- Area of a Circle:**
  - $A = \pi r^2$



## Examples

- Find the area and circumference. Round to the nearest tenth:



ADVICE: Use the pi button, not 3.14. To ensure accurate answers, you should not round until the very end!!!

## Examples

- If the circumference of a circle is 10 inches, find the radius.
 
$$C = 2\pi r$$

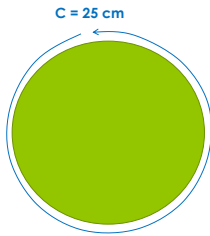
$$10 = 2\pi r$$

$$\frac{10}{(2\pi)} = r$$

$$1.6 \approx r$$
- If the area of a circle is  $30 \text{ in}^2$ , find the diameter.

$$\begin{aligned}
 A &= \pi r^2 \\
 30 &= \pi r^2 \\
 9.549 &\approx r^2 \\
 3.1 &\approx r \\
 6.2 &\approx d
 \end{aligned}$$

Find the area:



$$C = 2\pi r$$

$$25 = 2\pi r$$

$$\frac{25}{2\pi} = r$$

$$3.98 \approx r$$

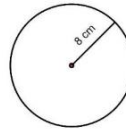
$$A = \pi r^2$$

$$A = \pi \cdot (3.98)^2$$

$$A \approx 49.8 \text{ cm}^2$$

Exact answers...

- Math people often dislike rounded answers because they are not exact.
- How might we write these answers exactly?
- To write an exact answer, just leave the "pi" in the expression.



$$A = \pi r^2$$

$$A = \pi \cdot 8^2$$

$$A = 64\pi$$

- If the **area** of a circle is  $16\pi$  square feet, what is the exact circumference in feet?

PLAN: Area  $\rightarrow$  Radius, then  
Radius  $\rightarrow$  Circumference

$$A = \pi r^2$$

$$16\pi = \pi r^2$$

$$16 = r^2$$

$$4 = r$$

$$C = 2\pi r$$

$$C = 2\pi \cdot 4$$

$$C = 8\pi \text{ ft}$$

Problem Solving

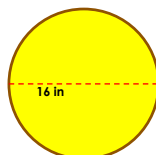
- At Pedro's pizza, an 8-inch pizza (the size of the pizza is the diameter) costs \$6 and a 16-inch pizza costs \$15. Which is the better deal?

Here's what the pizzas look like...

\$6

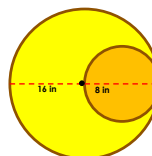


\$15



Problem Solving

- At Pedro's pizza, an 8-inch pizza (the size of the pizza is the diameter) costs \$6 and a 16-inch pizza costs \$15. Which is the better deal?



8-inch

Radius = 4

$$A = 16\pi$$

$$A \approx 50.3$$

16-inch

Radius = 8

$$A = 64\pi$$

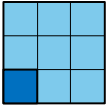
$$A \approx 201.1$$

### A similar phenomenon...

- If you **double** the side lengths of a square, does the area double?



- If you **triple** the side lengths of a square, does the area triple?



### No homework

- I will be gone tomorrow. You will have a sub.
- You will be working on an area/perimeter/circumference worksheet during class. (Rectangles, triangles, and circles)
- EXPECTATIONS:
  - Show all work
  - May not move seats to work with others
  - Can collaborate with people in your group
  - It's a long worksheet – stay on task the whole time!
  - KEEP THE VOLUME DOWN!