



MATH WITH MR DJ

GRADE 7 · GEOMETRY

# AREA OF A CIRCLE

**Today's goal:** I can find the area of a circle to solve problems, including by using the formula for area of a circle.



Tan



Digit



Blaze



Pi



WARM-UP

Turn & talk · 1 min

# A circle with diameter 10 cm

1 Find its area.

TURN & TALK

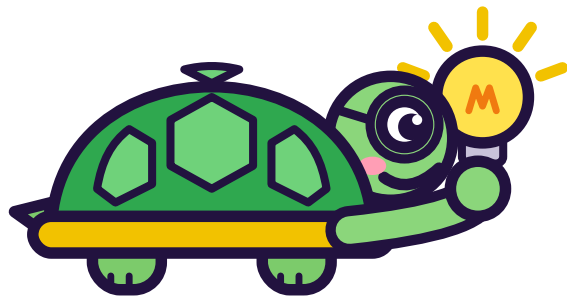
**$25\pi$  or  $100\pi$ ?**



# Always the RADIUS. Always SQUARED.

1 Diameter 10  $\rightarrow$  radius 5.

2  $A = \pi \times 5^2 = 25\pi \text{ cm}^2$



## BIG IDEA 2

# Squaring the diameter is 4x too big

1  $\pi \times 10^2 = 100\pi$ , and  $100 \div 25 = 4$ .

2 The diameter is already doubled; squaring doubles the doubling.

### REMEMBER

**Halve first. Then square.**



**WATCH OUT!**

# Area is not circumference

**1**  $C = 2\pi r = 10\pi \text{ cm}$  — a distance around

**2**  $A = \pi r^2 = 25\pi \text{ cm}^2$  — a covering inside

**DON'T FALL FOR IT**

**The square is the only difference. The units give it away.**



### BIG IDEA 3

# Double the radius, QUADRUPLE the area

1  $r = 3 \rightarrow 9\pi$ .  $r = 6 \rightarrow 36\pi$ . Four times.

2 Circumference would only double.

#### REMEMBER

**A 24-inch pizza is FOUR times a 12-inch one.  
Not two.**



# Remember

- 1  $A = \pi r^2$ .
- 2 Given a diameter, halve it first.
- 3 Area is in **square** units; circumference is in plain units.



YOUR TURN

Whiteboards up!

# Pick your pepper!



◀ MILD

Find the area of a circle with radius 7 cm.

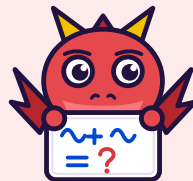
#1 on your practice sheet



◀◀ MEDIUM

Find the area of a circle with diameter 14 cm.

#4 on your practice sheet



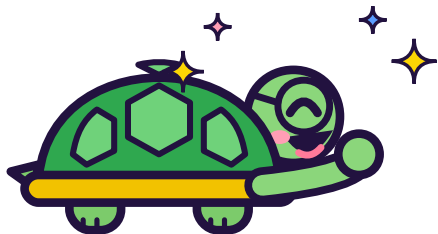
◀◀◀ SPICY

Why do questions 1 and 4 give the same answer?

#6 on your practice sheet



# How's it going?



**3 • Got it!**

I could teach it



**2 • Almost**

One more example, please



**1 • Not yet**

I need some help



MATH WITH MR DJ

# NOW YOU!

**Practice sheet:** everyone does Mild & Medium, then climb the peppers.

**Stuck?** Look back at Mr DJ's example at the top of the sheet.

**Need it again?** Step-by-step videos on YouTube @MathWithMrDJ

**Brain break:** 3 new daily puzzles at [puzzles.mathwithmrdj.com](https://puzzles.mathwithmrdj.com)

