LESSON MAKER PRO

Turn by Turn

Convert between degrees and radians.

HIGH SCHOOL · MT.PLUS.ALG.TRIG.2

MT.PLUS.ALG.TRIG.2 "Understand and use the radian measure of an angle and convert between degree and radian measures."

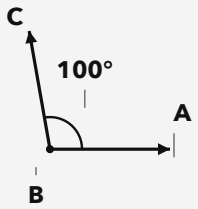
NAME _____ DATE _____

THE BIG IDEA

A full turn is 360° or 2pi radians. To change degrees to radians, multiply by pi/180. To change radians to degrees, multiply by 180/pi.

WORKED EXAMPLE

Write the angle shown in radians.



1. 100° × pi/180
2. = 100pi/180
3. = 5pi/9

Answer: 5pi/9 radians

PRACTICE 4 problems

1 Convert 135° to radians.

ANSWER _____

2 Convert 240° to radians.

ANSWER _____

3 Convert 5pi/6 radians to degrees.

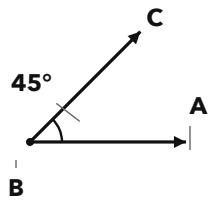
ANSWER _____

4 Convert 7pi/4 radians to degrees.

ANSWER _____

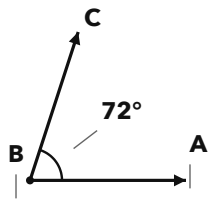
APPLY IT Show your work

1 A phone camera sweeps through the angle shown to film a concert. How many radians does it sweep?



ANSWER _____

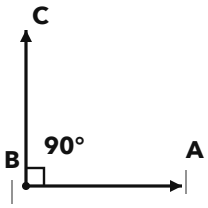
2 A game character turns through the angle shown to face a teammate. Write the turn in radians.



ANSWER _____

CHALLENGE One step up

A dancer turns through the angle shown, then turns another 2pi/3 radians in the same direction. What is the total turn in degrees?



WORK SPACE AND ANSWER

ANSWER KEY # Turn by Turn

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Convert 135° to radians.	**3pi/4 radians**
2	Convert 240° to radians.	**4pi/3 radians**
3	Convert 5pi/6 radians to degrees.	**150°**
4	Convert 7pi/4 radians to degrees.	**315°**

PART 2 · APPLY IT

1. **pi/4 radians** Multiply 45° by pi/180 to get pi/4 radians.
2. **2pi/5 radians** Multiply 72° by pi/180 to get 2pi/5 radians.

CHALLENGE

210°

For the challenge, 2pi/3 radians is 120°, and 90° + 120° = 210°. Accept equivalent exact expressions containing pi for radian answers.