LESSON MAKER PRO

Circle Turn Detectives

Use parts of a circle to measure angles.

GRADE 4 · 4.MD.C.5a

CCSS.Math.Content.4.MD.C.5a "An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle..."

NAME _____ DATE _____

PART 1: PRACTICE

A full circle is made of 360 one-degree angles. To find an angle from a fraction of a circle, multiply 360 by the fraction.

WORKED EXAMPLE

An angle turns through 1/5 of a full circle. What is its measure?

1. A full circle measures 360 degrees.
2. Find 1/5 of 360: 360 / 5 = 72.
3. The angle measures 72 degrees.

Answer: 72 degrees

PRACTICE 6 problems

1 An angle turns through 1/4 of a full circle. What is its measure?

ANSWER _____

2 An angle turns through 1/2 of a full circle. What is its measure?

ANSWER _____

3 An angle turns through 3/4 of a full circle. What is its measure?

ANSWER _____

4 An angle turns through 1/6 of a full circle. What is its measure?

ANSWER _____

5 An angle turns through 2/3 of a full circle. What is its measure?

ANSWER _____

6 An angle turns through 7/12 of a full circle. What is its measure?

ANSWER _____

APPLY IT Show your work

1 At the school arcade, a game spinner arrow moves through 2/9 of a full circle from its starting spot. How many degrees does the arrow turn?

WORK SPACE

ANSWER _____

2 In a racing video game, a steering wheel icon turns through 7/8 of a full circle. How many degrees does it turn?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A digital drawing wheel turns 1/4 of a circle, then turns another 1/8 of a circle in the same direction. What fraction of a full circle does it turn altogether, and how many degrees is that? Explain your reasoning.

_____

_____

ANSWER KEY

Circle Turn Detectives

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	An angle turns through 1/4 of a full circle. What is its measure?	**90 degrees**
2	An angle turns through 1/2 of a full circle. What is its measure?	**180 degrees**
3	An angle turns through 3/4 of a full circle. What is its measure?	**270 degrees**
4	An angle turns through 1/6 of a full circle. What is its measure?	**60 degrees**
5	An angle turns through 2/3 of a full circle. What is its measure?	**240 degrees**
6	An angle turns through 7/12 of a full circle. What is its measure?	**210 degrees**

PART 2 · APPLY IT

1. **80 degrees** Divide 360 by 9 to find 1/9 of a circle, which is 40 degrees. Multiply 40 by 2 to get 80 degrees.
2. **315 degrees** Divide 360 by 8 to find 1/8 of a circle, which is 45 degrees. Multiply 45 by 7 to get 315 degrees.

CHALLENGE

3/8 of a circle, 135 degrees. Since 1/4 equals 2/8, 2/8 + 1/8 = 3/8. Then 3/8 of 360 degrees is 135 degrees.

Accept equivalent fractions for the challenge, such as 6/16, if the student also gives 135 degrees. Accept answers written with the word degrees or a degree symbol.