LESSON MAKER PRO

Circle Cut Counts

Connect parts of a turn to degrees.

GRADE 4 · TEKS 4.7.B

4.7.B "illustrate degrees as the units used to measure an angle, where 1/360 of any circle is one degree and an angle that "cuts" n/360 out of any circle whose center is at the angle's vertex has a measure of n degrees..."

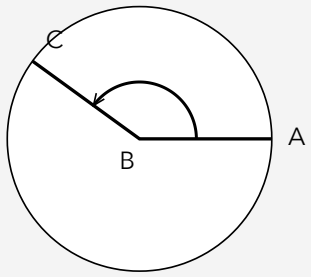
NAME _____ DATE _____

DEGREES AROUND A CIRCLE

A full circle has 360 degrees. To find the degrees in a fraction of a circle, divide 360 by the denominator, then multiply by the numerator. For example, 1/10 of a circle is 36 degrees. The vertex is the center. One degree subtends 1/360 of a full circle; n one-degree units subtend n/360. Radius length does not change the angle.

WORKED EXAMPLE

The angle shown cuts 2/5 of a full circle. What is its measure in degrees?



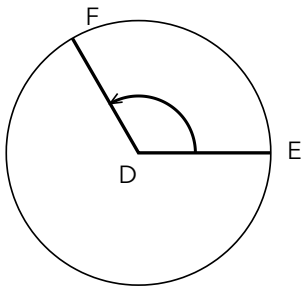
Follow the marked counterclockwise turn

1. Divide 360 by 5: 360 / 5 = 72.
2. Multiply 72 by 2: 72 x 2 = 144.
3. The angle cuts 144/360 of a circle.

Answer: 144 degrees

PRACTICE 6 problems

1 What fraction of a full circle does the angle shown cut? Write the fraction in simplest form.



120° counterclockwise

ANSWER _____

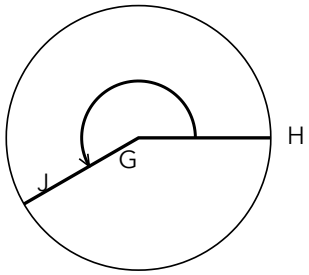
2 A skateboarder turns 3/4 of a full circle to change direction. How many degrees does the skateboarder turn?

ANSWER _____

3 An angle cuts 1/6 of a full circle. What is its measure in degrees?

ANSWER _____

4 What fraction of a full circle does the angle shown cut? Write the fraction in simplest form.



210° counterclockwise

ANSWER _____

5 An angle measures 90 degrees. What fraction of a full circle does it cut? Write the fraction in simplest form.

ANSWER _____

6 An angle cuts 11/12 of a full circle. What is its measure in degrees?

ANSWER _____

APPLY IT Show your work

1 In a video game, a player turns a character 1/8 of a full circle. How many degrees does the character turn? Draw two different-sized circles with this same central turn. Explain why both have the same degree measure.

2 At dance practice, Nia makes a turn that is 7/9 of a full circle. How many degrees does Nia turn?

CHALLENGE One step up

A robot turns 1/3 of a full circle, then turns 1/4 of a full circle in the same direction. What fraction of a full circle does it turn altogether, and how many degrees is that?

ANSWER KEY

Circle Cut Counts

GRADE 4 · TEKS 4.7.B

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	What fraction of a full circle does the angle shown cut? Write the fraction in simplest form.	**1/3**
2	A skateboarder turns 3/4 of a full circle to change direction. How many degrees does the skateboarder turn?	**270 degrees**
3	An angle cuts 1/6 of a full circle. What is its measure in degrees?	**60 degrees**
4	What fraction of a full circle does the angle shown cut? Write the fraction in simplest form.	**7/12**
5	An angle measures 90 degrees. What fraction of a full circle does it cut? Write the fraction in simplest form.	**1/4**
6	An angle cuts 11/12 of a full circle. What is its measure in degrees?	**330 degrees**

PART 2 · APPLY IT

1. **45 degrees Both turns cut the same 1/8 fraction of their circles, regardless of radius.** Divide a full circle into 8 equal parts. Each part is 45 degrees, so 1/8 turn is 45 degrees.
2. **280 degrees** Divide 360 degrees by 9 to get 40 degrees for each ninth. Multiply 40 by 7 to get 280 degrees.

CHALLENGE

7/12 of a full circle, 210 degrees

Accept equivalent wording such as “one third of a circle” for fractional answers. Fractions should be in simplest form.