Unit 7, Lesson 9

Use a Protractor to Measure Angles

Let's use some tools to measure angles.

Warm-up

True or False: There's Something about 45

Decide if each statement is true or false. Explain your reasoning.

- $2 \times 45 = 6 \times 15$

- $4 \times 45 = 2 \times 90$

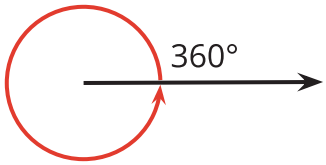
- $3 \times 45 = 180 - 90$

- $6 \times 45 = 45 + 90 + 135$

Activity 1

How Large Is a 1° Angle?

1. A ray that turns all the way around its starting point has made a full turn or has turned 360°.



What fraction of a full turn is each of the following angle measurements?

a. 120°

b. 60°

c. 45°

d. 30°

e. 10°

f. 1°

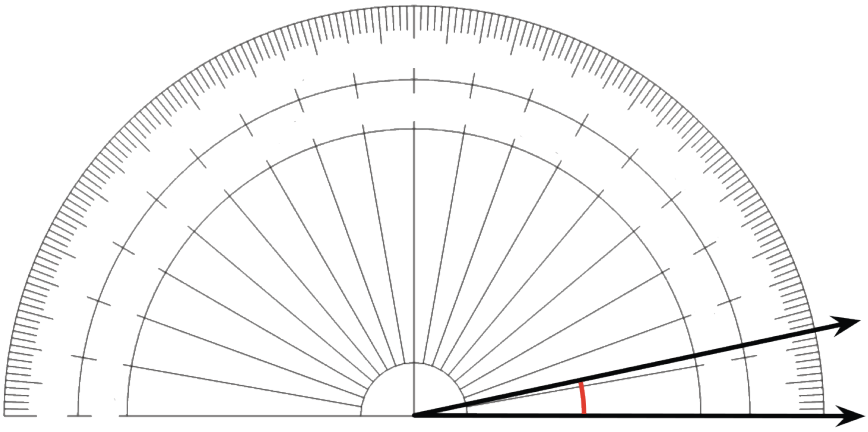
2. Your teacher will give you a **protractor**, a tool for measuring the number of degrees in an angle.

a. How is 1° shown on the protractor?

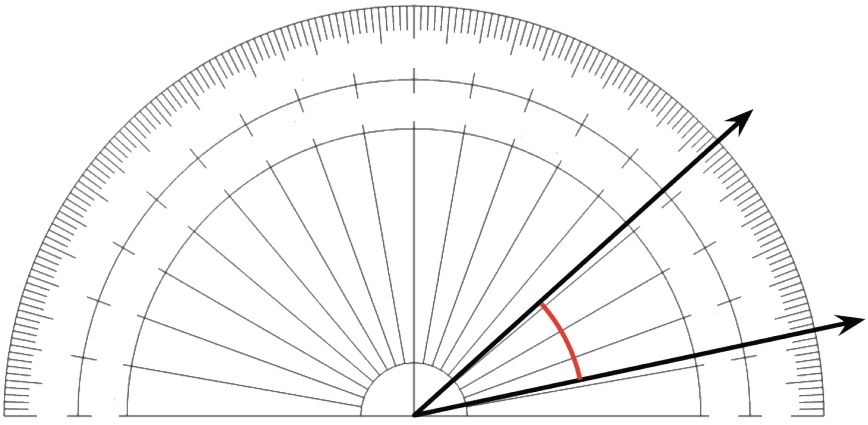
b. How many 1° measurements do you see?

3. A protractor with no numbers has been placed over an angle.
   - The center of the protractor is lined up with the vertex of the angle.
   - The straight edge of the protractor lines up with a ray of the angle.

   How many degrees is this angle? Explain how you know.



4. An angle contains thirty 1° angles. How many degrees is this angle?

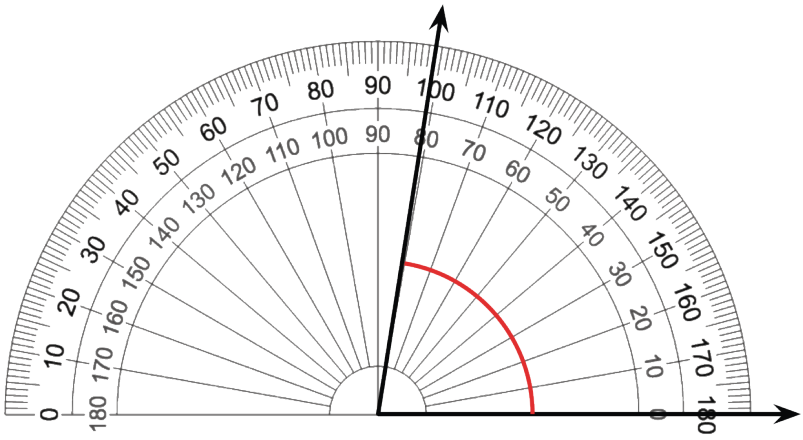


Activity 2

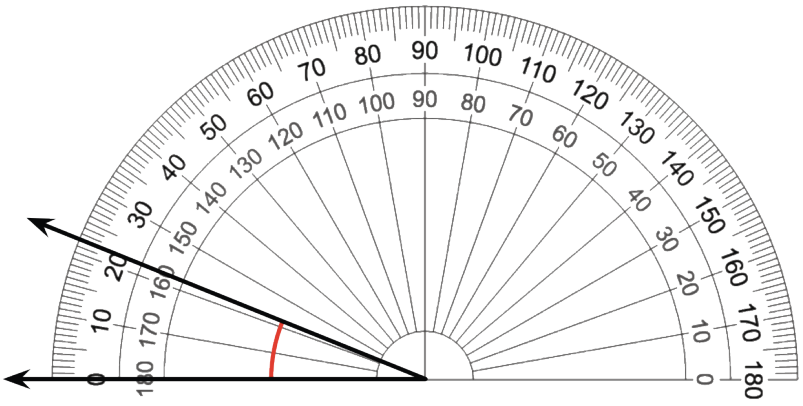
Use a Protractor

1. Here are 4 angles. A protractor has been placed over each angle. Measure the size of each angle in degrees.

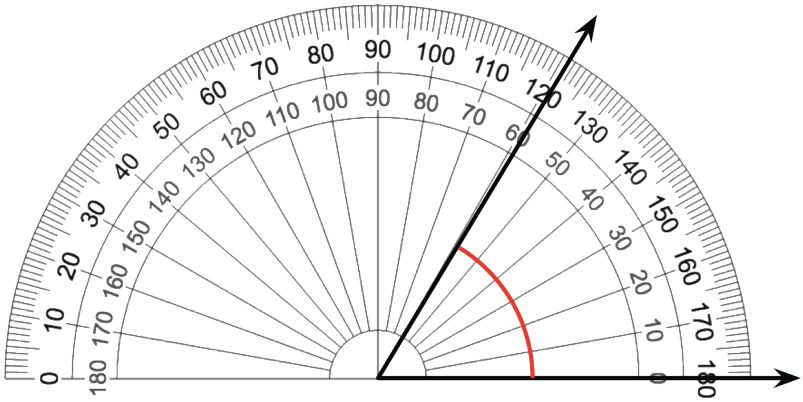
   a.



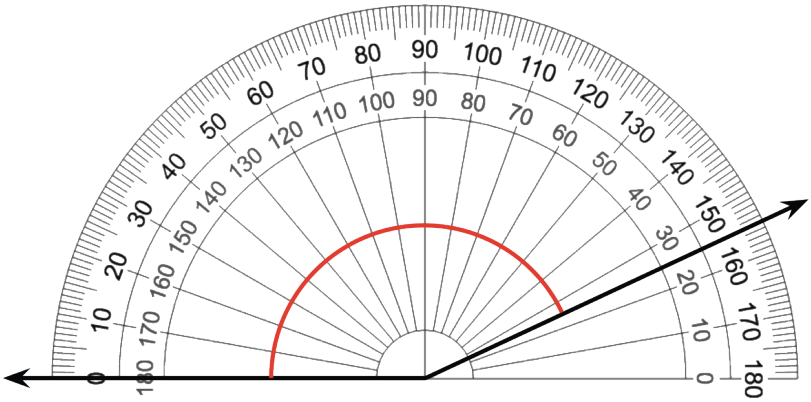
   b.



c.



d.



2. Elena and Kiran measure an angle with a protractor. Elena says the angle is 80°. Kiran says the angle is 100°. Why are the measurements different? Which measurement is correct? Explain your reasoning.