

# 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. Be prepared to explain your reasoning.

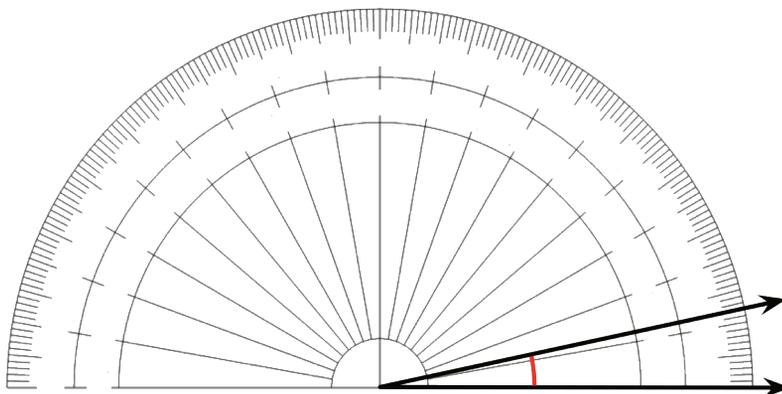
- $2 \times 45 = 6 \times 15$
  
  
  
  
  
  
  
  
  
  
- $4 \times 45 = 2 \times 90$
  
  
  
  
  
  
  
  
  
  
- $3 \times 45 = 180 - 90$
  
  
  
  
  
  
  
  
  
  
- $6 \times 45 = 45 + 90 + 135$



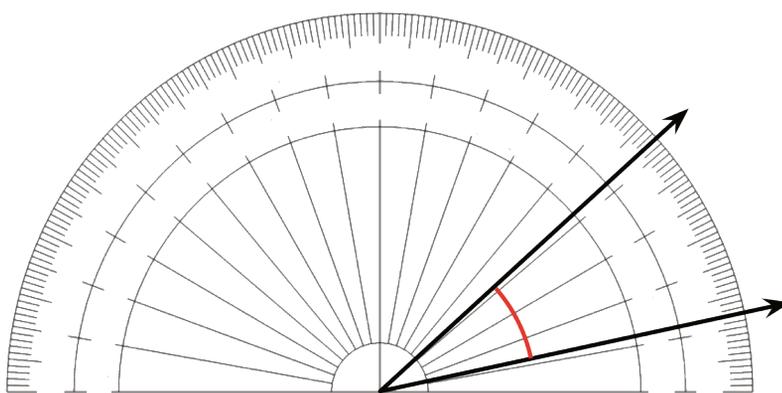
3. A protractor with no numbers has been placed over an angle.

- The center of the protractor is lined up with the vertex of the angle.
- The straight edge of the protractor is lined up with a ray of the angle.

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



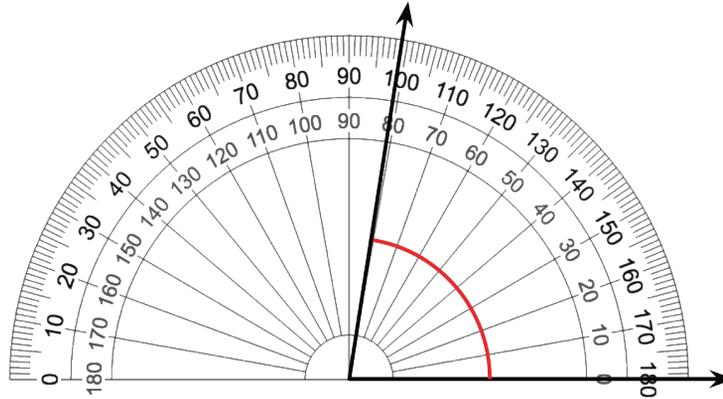
4. An angle contains thirty  $1^\circ$  angles, as shown. How many degrees is this angle?



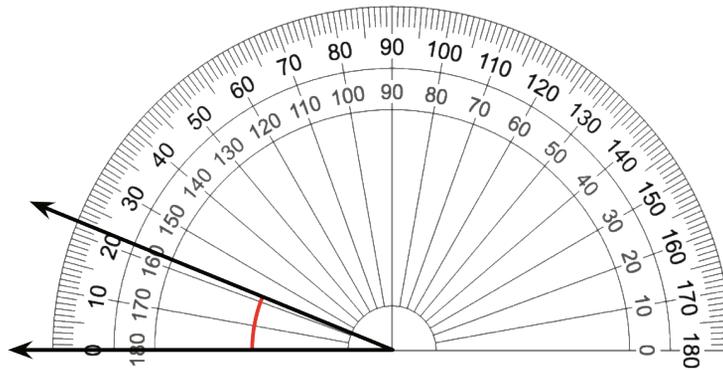
## 9.2: Use a Protractor

1. Here are four angles whose sizes you may have estimated earlier. A protractor has been placed over each angle. Measure the size of each angle in degrees.

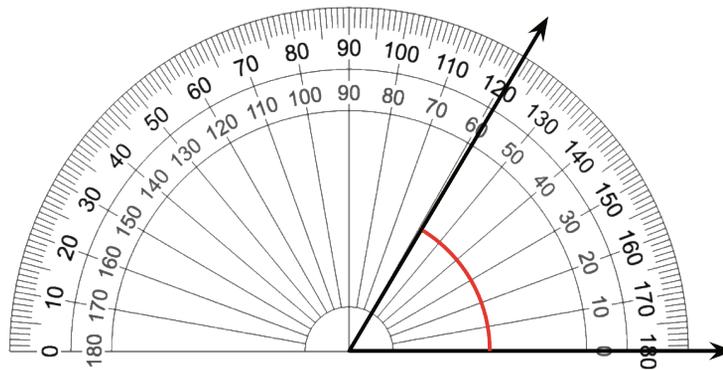
a.



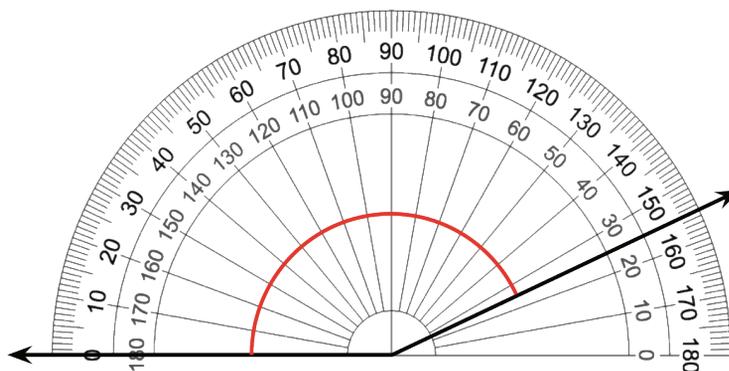
b.



c.



d.



2. Elena and Kiran are measuring an angle with a protractor. Elena says the angle is  $80^\circ$ . Kiran says it shows  $100^\circ$ . Why might they end up with different measurements? Which one is correct? Explain your reasoning.

