

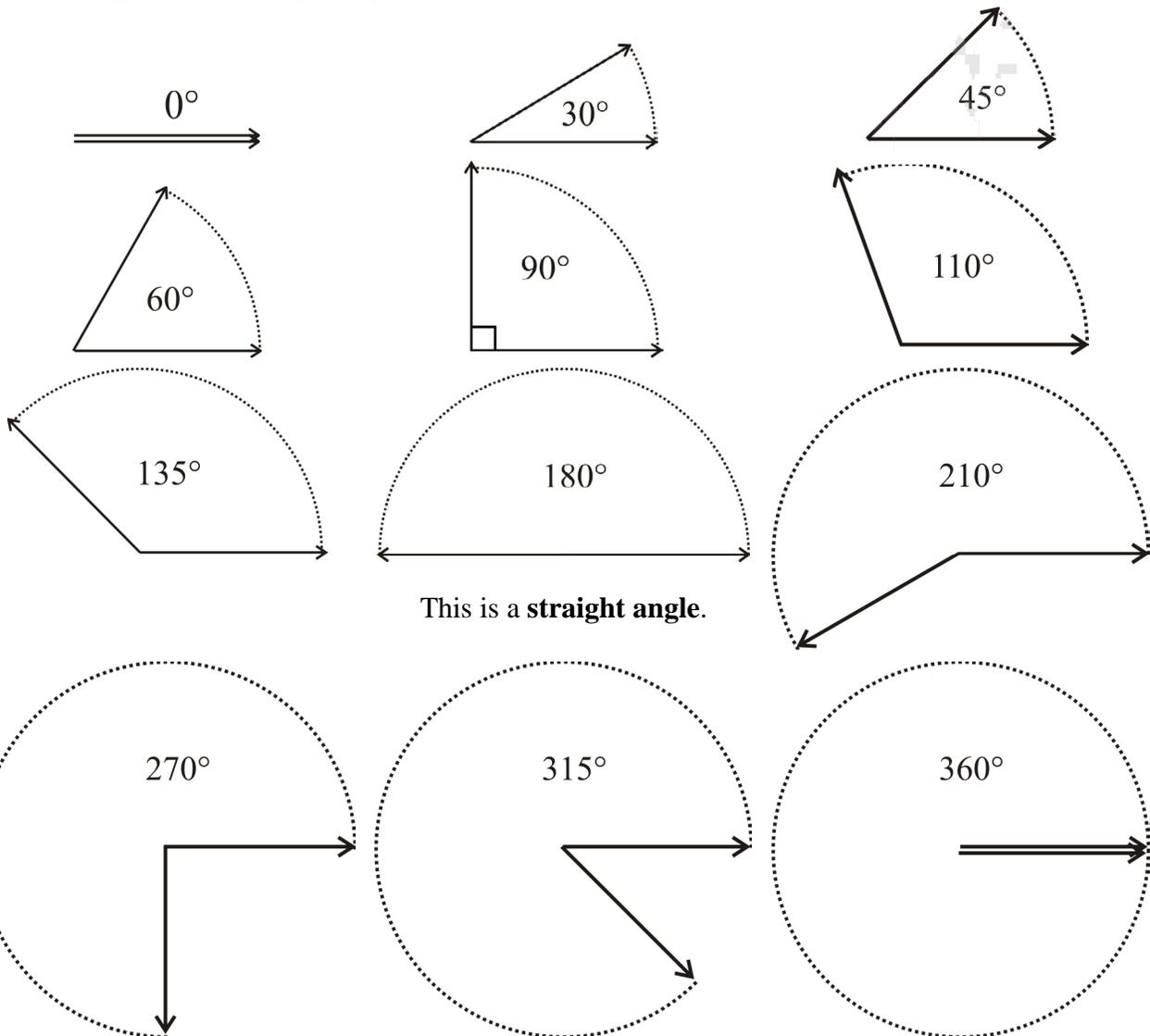
# Measuring Angles

Remember how one side of the angle traces out a circular arc°. We use that circle to measure how big the angle is. We look at how much the angle has “opened” as compared to the full circle.

Angles are measured in **degrees**. The symbol for degrees is a small raised circle: °.

- **The full circle is 360° (360 degrees).**
- A half circle (a straight angle) is 180°.
- A quarter of a circle (a right angle) is 90°.

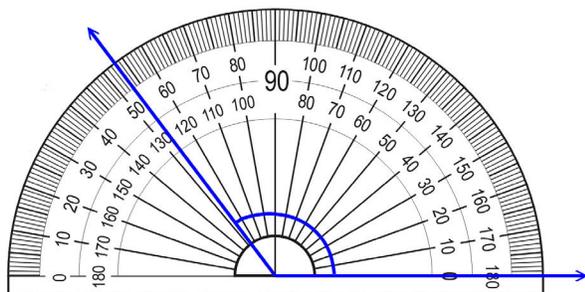
Show the angles below using two pencils. Try to “see” the circle that is traced in the air.



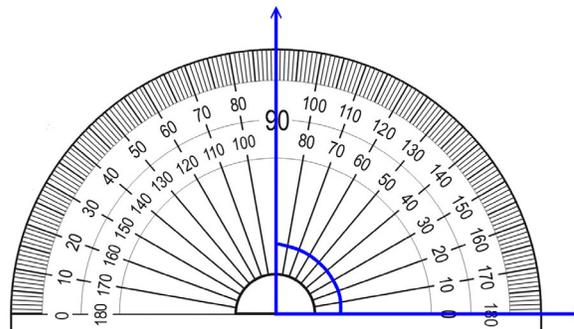
This is a 1-degree angle — it is 1/360 part of the full circle!

## How to use a protractor to measure angles

1. Place the midpoint of the protractor on the vertex of the angle.
2. Line up one side of the angle with the zero line of the protractor (where you see the number 0).
3. Read the degrees where the other side crosses the number scale.



an obtuse angle;  $127^\circ$

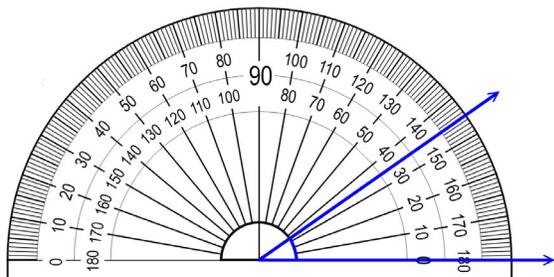


a right angle;  $90^\circ$

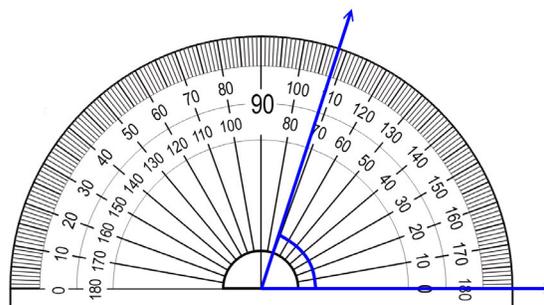
Make sure you read from the right set of numbers. A protractor has two sets of numbers: one set goes from 0 to 180, and the other set from 180 to 0. Which one you read depends on how you place the protractor in relation to the angle. One of the sides of the angle is lined up with one of the zero lines of the protractor. You read the set of numbers that starts with *that* zero.

In the examples above we lined up one of the sides of the angle with the zero of the lower set of numbers, so we need to read the lower set of numbers.

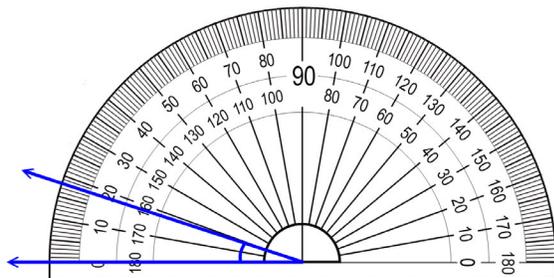
1. Measure the angles.



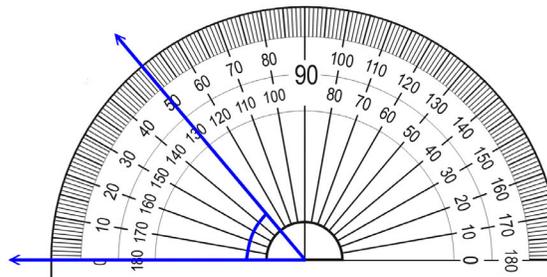
a. \_\_\_\_\_ $^\circ$



b. \_\_\_\_\_ $^\circ$



c. \_\_\_\_\_ $^\circ$



d. \_\_\_\_\_ $^\circ$