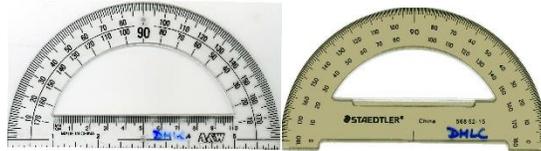


USING A PROTRACTOR

The protractor as well as the compass were instruments used in ancient Greece to solve geometry problems. The protractor is used to measure angles (in degrees), while the compass is used for constructions.

Most of us know how to use the compass, but when using a protractor there are a few subtle things to highlight that become important in our studies of geometry.

While you may know how to measure angles (i.e. you place one of the rays of the angle at the base of the protractor and then place the vertex of the angle at the point (or hole) in the middle of the base), did you know that depending on the type of protractor the “zero” may be at a different spot?



Note that in the first protractor, the “zero” is marked by a hole (under the ‘5’), while in the second, it is marked by a small line.

Once we find “zero”, we then find the place where the other ray intersects the ruler and read the measurement from the correct direction. Caution: The bottom of the protractor is not necessarily the line that indicates zero. Depending on the type of protractor, zero may be as much as $\frac{1}{2}$ inch above that ray. Check the particular protractor you are using.

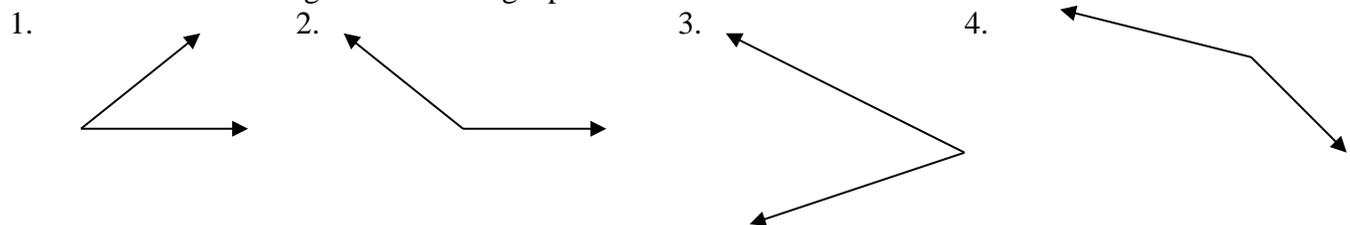
Note that we can read angle measures from both left to right and right to left as in the example shown.



The two angles at the right are congruent (both are 50 degrees), but they have different orientations. However, we do not need to change the paper or the positioning of the protractor, because we can measure from both sides. On the top, we measured from the left side; on the bottom, we used the right.

Practice Exercises:

Measure each of the angles below using a protractor.



Answers:

1. 40° 2. 143° 3. 45° 4. 149°