Script

Example: Inscribed Angles

Problem:

Shown below is circle C, with inscribed angles ADB and AEB drawn. Given that major arc ADB <highlight arc ADB on the circle> measures 280 degrees, angle ADB <highlight angle ADB> measures 3x minus 5 degrees and angle AEB <highlight angle AEB> measures 5y plus 15 degrees. Find the values of x and y.

Solution:

To begin this problem, we must remember the property that an inscribed angle has a measure equal to half its intercepted arc. In this case, angle ADB and angle AEB BOTH will have half the measure as minor arc AB.

Since we are not given the measure of minor arc AB, we must first find that. That measure will be 360 minus the measure of major arc ADB.

The measure of minor arc AB equals 360 minus 280. This equals 80.
Now we can set up two different equations. One using inscribed angle ADB and one using inscribed angle AEB.

The measure of angle ADB is equal to half of the measure of arc AB, half of 80, which is 40.

Using the information given, 3x minus 5 equals 40.

Solve this to get x equals 15.

The measure of angle AEB is also equal to half of the measure of arc AB, half of 80, which equals 40.

Using the information given, 5y plus 15 equals 40.

Solve this to get y equals 5.

If you want to check your work, substitute the x and y values into the original expressions to see if the angles are equal.