

Geometry, You Can Do It !

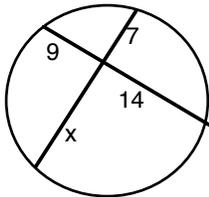
Circle Theorems, applications

by Bill Hanlon

We have studied the lines, segments, and angles associated with circles. While many consider theorems in math as very important, you should realize those theorems do you little or no good unless you know the vocabulary being used in the body of the hypotheses.

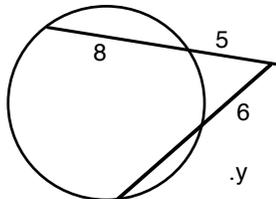
Study your definitions, as well as your postulates and theorems. As important as it for you to memorize them, it is just important that you are able to visualize that knowledge.

Let's see if we can find the lengths of line segments using the theorems we have learned.



Can you name the theorem that would allow you to find the value of x ? The value of x is 18.

State the theorem that would allow you to find the value of y .



These numbers are not set up as the theorem described them. I know that does not bother you because you would merely search your memory for theorems about secants and adjust the numbers to accommodate your knowledge. Right?

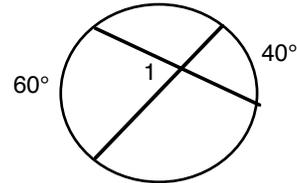
The formula you would use is

$$13 \cdot 5 = y \cdot 6$$

$$10.8\bar{3} = y$$

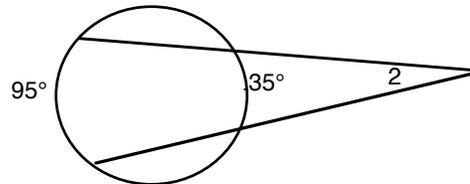
Let's see how you can do with arcs and angles.

Find the measure of $\angle 1$.



Going back to the angle theorems you learned dealing with chords, you know $\angle 1 = 1/2 (40+60)$. So the measure is 50° .

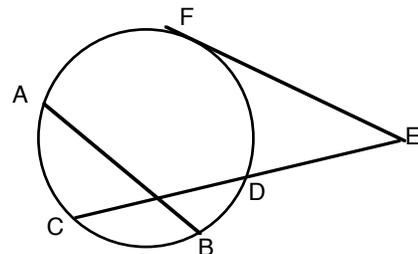
Try this, find $\angle 2$.



Hopefully, the answer you arrived at was 30° .

Now keep in mind, I can't make these problems more difficult, I can, however, make them look harder. Try this one.

\overline{EF} is a tangent segment. Find CD if $FE = 20$ and $DE = 10$



The answer you should have arrived at is $CD = 40$.

If you didn't, look at the information and the picture given, then review your theorems and postulates to determine which of them apply to the problem.