###

### 5.4b Classwork: Circles, Angles, and Scaling

Examine the figures below. $\overbar{BC}$ has a length of 5 units.



1. Write a complete sentence explaining why the figures are scale drawings of each other. You may use a protractor. Use words like *corresponding angles, scale factor, corresponding sides, circle.*
2. Remember that you have been given that $\overbar{BC}$ has length 5. What is the radius of each circle? Justify your answer.
3. Calculate the area of each triangle.
4. Classify the triangles by their sides and angles.
5. Name two pairs of complementary angles in the figures.
6. What is the area of each circle?
7. How many of the smaller circle would fit inside the bigger circle, if you could put all the area in without overlapping and with no empty space?
8. What is the circumference of each circle?
9. How many of the circumferences of the smaller circle equal the bigger circumference?
10. Fill in the blanks: When you enlarge a figure with a scale factor of two, the side lengths and circumference **\_\_\_\_\_\_\_\_\_\_\_\_,** the areas **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**, and the angles **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**
11. You could construct other figures that are similar to these two figures with a different scale factor. What would be the dimensions of the triangle with scale factor $\frac{1}{2}$ from the figure on the left? What would be the radius of the circle?
12. Follow the steps below to create another figure in the space below:
	1. Make a dot for the center of a circle, and use a compass to construct a circle around that dot.
	2. Use a straightedge to draw in a diameter with endpoints labeled *A* and *B*.
	3. Choose any point on the edge of the circle, and label it *C*.
	4. Draw in segments *AC* and *BC* so you can see a triangle *ABC* inscribed in the circle.
	5. Measure the angles in the triangle, and classify the triangle.
	6. Are there any pairs of complementary angles? If so, name them.