**Activity 2.7.5 Perpendicular Bisectors**

Tools needed for this activity: paper, pencil, ruler, protractor, straightedge, and compass.

1. Take a sheet of paper and draw a segment $\overbar{AB}$.
2. Fold the paper so that the endpoints, *A* and *B* coincide.
3. Unfold the paper. Draw a line along the crease where the paper was folded and label the line *l*.
4. Label the point where *l* and $\overbar{AB}$ as point *M*.
5. Measure the segments $\overbar{AM}$ and $\overbar{MB}$.

*AM* = \_\_\_\_\_\_\_\_\_\_ *MB* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Measure the angles formed by *l* and $\overbar{AB}$ at point M. What do you notice?
2. Answer these questions:
3. *B* is the image of *A* under what type of transformation?
4. What is the midpoint of $\overbar{AB}$?
5. What line bisects $\overbar{AB}$?
6. What line is perpendicular to $\overbar{AB}$?
7. Line *l* may be called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_ of $\overbar{AB}$.
8. Now with compass and straightedge perform this construction:
9. Construct the circle with center *A* passing through *B*.
10. Construct the circle with center *B* passing through *A*.
11. Label points where the circles intersect *C* and *D*.
12. What do you notice about points *C* and *D*?
13. Construct segments $\overbar{AC}$*,* $\overbar{AD}$*,* $\overbar{BC,}$ and $\overbar{BD}$.
14. Fold the paper again along the same crease. Identify pairs of triangles that coincide. Why must these pairs of triangles be congruent?
15. Complete this statement about a pair of triangles: ∆*ACD* $≅$ ∆\_\_\_\_\_\_\_\_\_.