**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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**Geometry, Mr. Lefebvre and Mrs. Sulkes**

**Construction Using Sketchpad**



**Construction 1 – Congruent Segments**

1. Create a segment and label it .



1. Create a separate line and label it j.
2. Select and a point on the line j.



1. Go to the menu Construct and select Circle by Center + Radius.
2. Select the circle and the line and go to menu Construct and select Intersections.
3. Label the center of the circle C and one of the points of intersections D.
4. Select the points A and B and go to the menu Measure and select Distance.
5. Select the points C and D and go to the menu Measure and select Distance.
6. Based on your measurements, does AB = CD?

**Construction 2 – Congruent Angles**

1. Construct an acute angle using two rays. Label the angle .



1. Make a circle with center at B of any size.
2. Select the Circle B and the ray BA. Go to the menu Construct and select Intersections. Label the point of intersection W.
3. Select the Circle B and the ray BC. Go to the menu Construct and select Intersections. Label the point of intersection X.
4. Select points W and X. Go to the menu Construct and select Segment.
5. Create a separate ray beneath the circle. Label the end point E and the other point F.
6. Select the points B and W. Go to the menu Construct and select Segment.
7. Select and the point E. Go to the menu Construct and select Circle by Center + Radius.



1. Select the Circle E and ray EF. Go to the menu Construct and select Intersections. Label the point Z.
2. Select and the point Z. Go to the menu Construct and select Circle by Center + Radius.



1. Select the circle Z and the Circle E. Go to the menu Construct and select Intersections. Choose one point or intersection and label it Y.
2. Select the points E and Y. Go to the menu Construct and select Ray.
3. Select points A, B, and C. Go to the menu Measure and select Angle.
4. Select points Y, E, and Z. Go to the menu Measure and select Angle.
5. Based on your measurement, does ?

**Construction 3 – Angle Bisector**

1. Construct an obtuse angle using two rays. Label the angle .



1. Make a circle with center at B and a large radius.
2. Select ray BA and circle B. Go to the menu Construct and select Intersection. Label the point of intersection X.
3. Select ray BC and circle B. Go to the menu Construct and select Intersection. Label the point of intersection Y.
4. Select X then B. Go to the menu Construct and select Circle by Center + Point.
5. Select Y then B. Go to the menu Construct and select Circle by Center + Point.
6. Select circle X and circle Y. Go to the menu Construct and select Intersections. Label the point of intersection Z.
7. Select points B and Z. Go to the menu Construct and select Ray.
8. Select the points A, B, and C. Go to the menu Measure and select Angle.
9. Select the points A, B, and Z. Go to the menu Measure and select Angle.
10. Select the points Z, B, and C. Go to the menu Measure and select Angle.
11. Based on your measurement, does 

**Construction 4 – Perpendicular Bisector**

1. Construct a segment. Label the points A and B.
2. Select points A and B. Go to the menu Construct and select Circle by Center + Point.
3. Select points B and A. Go to the menu Construct and select Circle by Center + Point.
4. Select Circle A and Circle B. Go to the menu Construct and select Intersections. Label the points X and Y.
5. Select the points X and Y. Go to the menu Construct and select Line.
6. Select line XY and . Go to the menu Construct and select Intersections. Label the point M.
7. Select the points A and M. Go to the menu Measure and select Distance.
8. Select the points M and B. Go to the menu Measure and select Distance.
9. Select the points X, M, and A. Go to the menu Measure and select Angle.
10. Select the points X, M, and B. Go to the menu Measure and select Angle.
11. Select the points Y, M, and A. Go to the menu Measure and select Angle.
12. Select the points Y, M, and B. Go to the menu Measure and select Angle.
13. Based on your measurement, is M the midpoint of segment AB? Is ?

**Construction 5 – Construct a Perpendicular Line at a Point on the Line**

1. Create a line.
2. Select the line. Go to the menu Construct and select Point on the Line. Label the point A.
3. Create a circle with center of A and any radius.
4. Select the circle A and the line. Go to the menu Construct and select Intersections. Label the points of intersections X and Y.
5. Create a circle with center of X and a radius larger than XA and smaller than XY.
6. Select the Circle X and the line. Go to the menu Construct and select Intersection.
7. Select the point of intersection from step 6 and the point X. Go to the menu Construct and select Segment.
8. Select the segment from step 7 and the point Y. Go to the menu Construct and select Circle by Center + Radius.
9. Select the Circle X and Circle Y. Go to the menu Construct and select Intersections. Label one of the points Z.
10. Select the two points of intersection from step 9. Go to the menu Construct and select Line.
11. Select the points Z, A, and X. Go to the menu Measure and select Angle.
12. Based on your measurement, is ?

**Construction 6 – Construct a Perpendicular Line with a Point not on the Line**

1. Make a line and point not on the line. Label the point P.
2. Construct a circle with center P that intersects the line twice.
3. Select Circle P and the line. Go to the menu Construct and select Intersections. Label the points X and Y.
4. Select points X and P. Go to the menu Construct and select Circle by Center + Point.
5. Select points Y and P. Go to the menu Construct and select Circle by Center + Point.
6. Select Circle X and Circle Y. Go the menu Construct and select Intersections. Label the new point of intersection Z.
7. Select points P and Z. Go to the menu Construct and select Line.
8. Select line PZ and XY. Go to the menu Construct and select Intersection. Label the point A.
9. Select points P, A, and Y. Go to the menu Measure and select Angle.
10. Based on your measurement, is 