**Mission Construction**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mission #1 The circumcenter.

1. Construct the perpendicular bisectors of the 3 sides KG, GF, and FK.

2.Label the midpoints M1, M2, and M3.

3. The point where the bisectors meet is the circumcenter. Label is “C”.

4. With point of compass at C and a radius equal to CK, circumscribes a circle around the triangle.

5. Go to mission #2

Mission #2 The centroid.

1. Bisect the three sides KG, GF, and FK.

2. Label the midpoints M1, M2, and M3.

3. Draw the three medians, FM1, KM2, and GM3.

4. The point where the medians meet is the centroid.

5. Go to mission #3.

Mission #3 The orthocenter.

1. Construct altitudes FA1, KA2, and GA3 to the three sides KG, GF, and FK.

2. Label the bottom of the altitudes A1, A2, and A3.

3. the point where the altitudes meet is the orthocenter. Label it “O”.

4. Find the midpoints of the three segments OK, OF, and OG.

5. Label the midpoints H1, H2, and H3.

6. Go to mission #4.

Mission #4 The incenter.

1. Bisect the three angles of the triangle.

2. The point where the angle bisectors meet is the incenter. Lable it “I”.

3. From the point I, construct a line that is perpendicular to the segment KF.

4. Label the bottom of the perpendicular “T”.

5. With a radius of IT, inscribe a circle within the triangle.

**K**

**F**

**G**