Geometry U1 –"Angle bisectors and the incenter"   **Name_____**

Homework Assignment

1) You know that if two lines intersect, their intersection is a single point. Now, think about four unique lines in a plane, none of which are parallel. In how many different ways can the four lines intersect each other? Draw some sketches to help you answer this question. How is this answer similar or different to the question you completed in class about three lines?

2) Draw a scalene triangle. Label all vertices and the incenter.
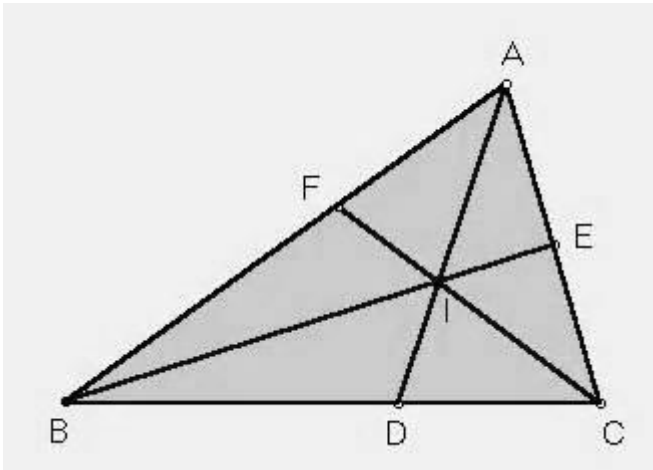
3) Since point I is on the bisector of ∠B, it is the same distance from segment _____ as it is from _____. This means that _____ = _____.

4) Since point I is on the bisector of ∠C, it is the same distance from segment _____ as it is from segment _____. This means that _____ = _____.

5) Since point I is on all three angle bisectors, it is the same distance from all three sides of the triangle. This means that _____ = _____ = _____. Therefore the circle with this radius must touch the sides of the triangle at _____.

6) Draw an acute, scalene triangle and include and label the following: an inscribed circle, an incenter, and all angle bisectors.