Math 467

In-Class Exercises on Congruence

6 March 2014 Instructor: F. Sottile

Work on a selection in your groups today. Complete them and hand in Tuesday, March 18.

(α) Given segments $\overline{AB}$ and $\overline{CD}$, prove that exactly one of the following holds

$$\overline{AB} < \overline{CD}, \quad \overline{AB} = \overline{CD}, \quad \text{or} \quad \overline{AB} > \overline{CD}.$$

(β) Given segments $\overline{AB}$, $\overline{CD}$, and $\overline{EF}$, with $\overline{AB} < \overline{CD}$ and $\overline{CD} < \overline{EF}$, prove that $\overline{AB} < \overline{EF}$.

(γ) Prove that supplements of congruent angles are congruent.

(δ) Given γ above, prove that vertical angles are congruent.

(ϵ) Given γ above, prove that an angle congruent to a right angle is a right angle.

(ζ) Prove the ASA Criterion for congruence of triangles.

(ω) Prove that an equiangular (all angles are congruent) triangle is equilateral (all sides are congruent).