Test 2

Name: _____

Show your work! Answers that do not have a justification will receive no credit.

1. (10 points) Write the negations of the following statements:

   (a) All right angles are congruent.

   (b) For every line ℓ there and point P not on ℓ there is at at most one line m through P and parallel to ℓ.

   (c) In any triangle the largest side is opposite the largest angle.

   (d) P if and only if Q.

2. (10 points) Draw pictures of the following:

   (a) Three rays $\overrightarrow{ABA}$, $\overrightarrow{AC}$ and $\overrightarrow{AD}$ so that $\overrightarrow{AD}$ is between $\overrightarrow{ABA}$ and $\overrightarrow{AC}$

   (b) Four points distinct points A, B, C, and D so that $A * B * D$ and $A * D * C$.

3. (20 points) Prove PASCH'S THEOREM: If A, B and C are distinct noncollinear points and ℓ is a line intersecting $\overline{AB}$ at a point between A and B, then ℓ also intersects either $\overline{AC}$ or $\overline{BC}$.

4. (20 points) Let ℓ be a line and P a point not on ℓ. Show that there is a line m through P and perpendicular to ℓ.

5. (20 points) Let $\triangle ABC$ have $\sphericalangle A \cong \sphericalangle B$. Then show $\overline{AC} \cong \overline{BC}$

6. (20 points) Prove SEGMENT SUBTRACTION: If $A * B * C$, $D * E * F$, $\overline{AB} \cong \overline{DE}$, and $\overline{AC} \cong \overline{DF}$, then $\overline{BC} \cong \overline{EF}$.