MATH 436 - College Geometry: Assignment 2*

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2.22. Define what it means for a point to lie inside a circle or outside a circle.

A point A lies inside $\circ O$ if there exists a radius $\overline{OC}$ such that $O - A - C$. Similiarly, a point B is outside $\circ O$ if there exists a radius OC such that $O - C - B$.

2.24. Prove: Given two unequal line segments, one can cut off from the longer given segment from either endpoint a line segment equal in length to the shorter given segment.

Proof. Let $\overline{AB}$ and $\overline{CD}$ be two line segments with $\overline{AB} < \overline{CD}$. Draw $\circ A$ with radius $\overline{AB}$. By postulate 3, we can construct $\circ C$ with radius $\overline{CX}$ such that $\overline{CX} = \overline{AB}$ and $C - X - D$. □

2.31. Figure out the relationships among the terms square, rectangle, parallelogram, rhombus, and trapezoid.

Each of the shapes listed is a trapezoid of one sort or another. A rhombus is a type of parallelogram with 4 equal sides. A rectangle is a type of paralellogram with 4 equal angles. A square is a type of rhombus with 4 equal angles.