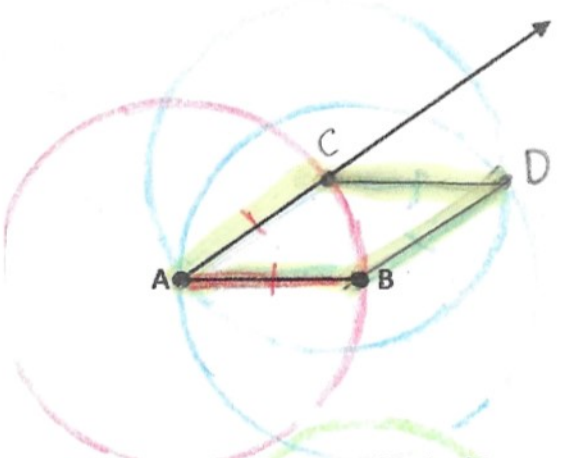
Constructions

Construction is the act of drawing geometric shapes using only a compass and straight edge. A compass is a measurement tool to draw circles, which show ALL points that are equidistant from a specified center point. New points are constructed only at intersections of existing circles or lines (segments, rays). Construction is the foundation of proof; the circles and lines in the construction prove that what we have constructed is truly what we are saying it is.

Quad w/ 4 ≅ sides

*If no side length given, CHOOSE ANY radius!

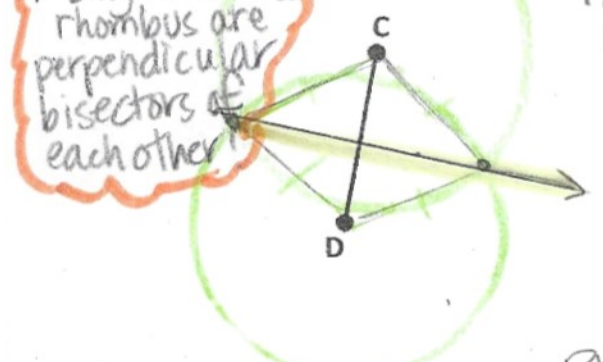
Examples: Construct a rhombus with a side length of $\overline{AB}$.



1. Set compass to radius AB.
2. Draw circle centered at A. (ALL points that are AB from A)
3. Mark intersection of ray & circle A as 3rd vertex, C.
4. Need length of AB from B & C; so draw circles centered @ B & C w/ radius AB to find 4th vertex.
5. 4th vertex, D, is where circle B & circle C intersect.
6. Use straight edge to finish rhombus

Construct the perpendicular bisector of $\overline{CD}$.

*Diagonals of a rhombus are perpendicular bisectors of each other!



1. Pick any radius more than $\frac{1}{2}$CD
2. Draw circles with this radius centered at both C & D. (Finds all points the same distance from C and from D.)
3. Mark intersection points of the two circles. These are the endpoints of the other rhombus diagonal.

Most constructions can based on a RHOMBUS and its properties.

- opposite sides are parallel
- opposite ∠s are ≅
- diagonals bisect each other
- diagonals are perpendicular
- diagonals bisect interior ∠s of rhombus