Notation: Fix points $F_1$ and $F_2$ and a distance $d > F_1F_2$. The set

\[
\{\text{Points } P \text{ in the plane so that } PF_1 + PF_2 = d\}
\]

is called an ellipse with foci $F_1$ and $F_2$.

Student conjectures are as follows:

1. The set of distances of all points on the ellipse to its center has both a maximum and a minimum element. The maximum element is $d/2$, and the minimum element is half the length of the shorter axis.

2. If $C$ is the center of the ellipse, then $F_1C = F_2C$.

3. If $P_1$ and $P_2$ are the endpoints of the major axis, then $F_1P_1 = F_2P_2$ and $F_2P_1 = F_1P_2$.

4. The length of the major axis is $d$.

5. The major axis is longer than the minor axis.

6. For any point $P$ on the ellipse, the measure of the angle $\angle F_1 PF_2$ is less than or equal to $90^\circ$. If the point is on the minor axis, then the angle equals $90^\circ$, and if the point is on the major axis, then the angle equals $0^\circ$.

7. The center of the ellipse is the midpoint of its minor axis.

8. The major axis of the ellipse lies on the perpendicular bisector of the minor axis, and the minor axis of the ellipse lies on the perpendicular bisector of the major axis.

9. The endpoints of the minor axis are equidistant from the foci.