Geometry I — Homework 6 — Due 25th Nov

- 1. Prove that a diameter of a circle is perpendicular to a chord if and only if it bisects it.
- 2. Prove that if two chords bisect each other, then they must be distinct diameters. Conclude that the diagonals of a parallelogram inscribed in a circle intersect at the center.
- 3. Prove that if two chords are not equal, then the longest one is the closest to the center. Conclude that two chords are equal if and only if they are equidistant from the center.
- 4. Let ABC be an equilateral triangle inscribed in a circle. If AB = 2 what is the radius of the circle?