# UW Math Circle
Week 4

Construct each of the following by using only a pen to draw, a string to make perfect circles, and the edge of your paper to make perfectly straight lines. You want to be completely sure that your constructions are correct, so avoid guessing and approximating!

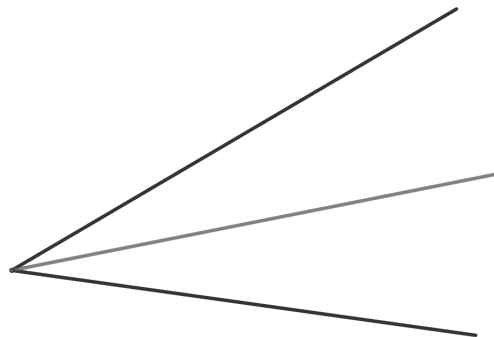1. Construct a perfect equilateral triangle (a triangle where all the sides are the same length).

2. Find the exact center of the circle below.
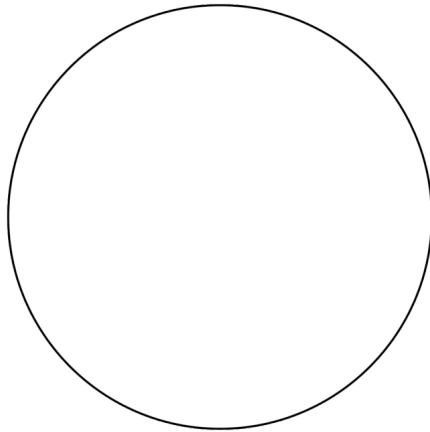
3. Find the line that perfectly bisects the two lines below (a line that splits the angle below into two equal angles).
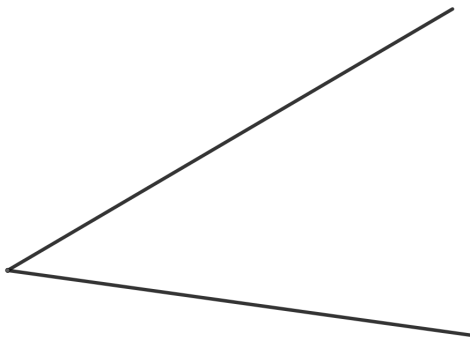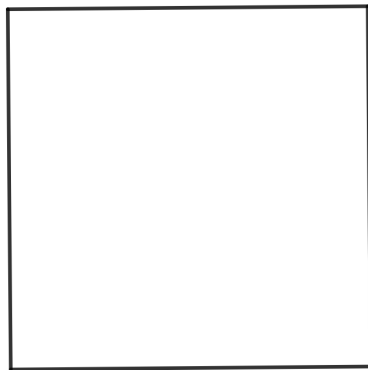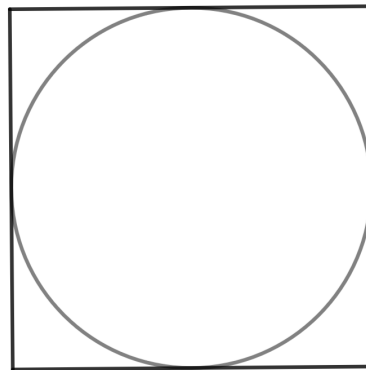
Perfectly bisect these two lines.   This is the goal.

4. Construct a perfect square.

5. We say that a circle is inscribed in a square if it just barely touches each side, but doesn't cross any of the sides (see below). Perfectly inscribe a circle in the below square.

Inscribe a circle in this square.   This is the goal.

6. Can you inscribe a square in a circle? What about inscribing a circle in an equilateral triangle? What about an equilateral triangle in a circle?

7. The line segment below is one inch long. Can you make a line segment of length 2? What about length 3? Length 1/2? What about length $\sqrt{2}$? What other lengths can you make?

8. Can you make a 60° angle? What about a 90° angle? How about 30° and 45° angles? Can you make a 15° angle? A 75° angle? What other angles can you make?

9. Construct a perfect hexagon.