Problems from Lecture 1

(1) Sketch the roots of unity on the unit circle for n = 1, 2, 3, 4, 5, 6, 7, 8, and 9.

(2) Explicitly calculate the fifth roots of i.
Express the values in cartesian format.
Express the values in polar format.
Plot your five answers on the unit circle.
Explain the geometry.

(3) Sketch the fifth roots of the following complex numbers: i, -i, 1+i, 1-3i.
Is there a pattern?