# Complex Numbers

## Reading

Section 1.1, 1.2

## Problems

- Practice Problems (page 18): 1, 2, 3, 4, 7, 9, 12
- Problems to be ready to present: 8
- Challenge: 13, 14

## Topics to know

1. Definition of Complex Numbers as pairs of real numbers
2. Properties of $i$
3. Real numbers are embedded into the Complex Numbers
4. Finding the square root of a number (Find roots of $\pm i$, then find their roots)
5. Complex Numbers as points on a plane. Addition as vector addition
6. Multiplication by $i$ amounts to rotation by 90 degrees
7. Conjugate of a number, $\bar{z}$
8. Modulus/Absolute value $|z|$
9. Polar coordinates representation of a complex number
10. Multiplication and division via polar representation
11. Use of polar representation for roots