Algebra - Complex Numbers

Grade 11 | Difficulty: Hard

1. Find the modulus and argument of 3 + 4i.

2. Solve for z: z^2 + 4z + 13 = 0 in the complex plane.

3. Convert 5(cos(30°) + i sin(30°)) into rectangular form.

4. Perform the division: (3 + 2i) / (1 - i).

5. Prove that the product of a complex number and its conjugate is always real.