Mathematics 300

Quiz 17 **Name:**_____

You must show your work to get full credit.

1. Prove: If for any integers a, b, and c if abc is even, then at least one of a, b, or c is even. *Hint:* We have shown that the product of two odd numbers is odd. You can use this in the proof.

2. Prove: For any integers n, if n^3 is even, then n is even.

3. Prove the number $\sqrt[3]{2}$ is irrational. *Hint:* You can use Problem 2 in the proof.

4. Prove: If α is irrational, then $\dfrac{\alpha+1}{\alpha-1}$ is irrational.