

Your Name Here

Homework 1

Mathematics 2216.01

Due September 2, 2022

In the following problems, you may use without justification the facts that $\text{odd} \times \text{odd} = \text{odd}$ and $\text{even} \times \text{anything} = \text{even}$.

1. Prove that $\sqrt{10}$ is irrational.

2. Prove that $\sqrt[3]{2}$ is irrational.

3. Prove that

$$1^2 + 2^2 + 3^2 + \cdots + n^2 = \frac{n(n+1)(2n+1)}{6}.$$