

1. *Prove that no integer in the sequence*

$11, 111, 1111, 11111, \dots$

is a perfect square.

Your answer here...

2. A *square-free integer* is an integer that is not divisible by any perfect squares other than 1. Prove that every integer can be written as the product of a square and a square-free integer.

Your answer here...

3. *Show that $\sqrt[3]{5}$ is irrational.*

Your answer here...