

M325K Practice Exam 2

No Calculators, books, notes, etc.

1. Define the floor function.
2. State the Well-ordering Property.
3. Let r be a rational number. Under what conditions on r will \sqrt{r} be rational?
4. Prove or disprove that the sum of two odd integers is even.
5. Find all primes of the form $n^2 + 2n - 3$, where n is an integer, and show that you really do have all of them.
6. Prove or disprove that for a real number x , $2[x] \leq [2x]$.
7. Prove that $\sqrt{3}$ is irrational.
8. Compute the exact value of $\prod_{n=1}^{97} (-1)^n$.
9. Prove that $\sum_{i=1}^n = \frac{n(n+1)(2n+1)}{6}$.