MATH 102: IDEAS OF MATH

WORKSHEET 13

Proof by contradiction

We conclude the logic part by the following proofs, which will employ proof by contradiction.

Theorem 1. *There are infinitely many primes.*

Theorem 2. $\sqrt{2}$ *is irrational.*

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Theorem 3. *Let a and m be natural numbers. There exist unique natural numbers q and r such that $0 \leqslant r < m$ and*

$$a = mq + r\,.$$