

PORTFOLIO PROOFS B

Instructions. Choose one of the following statements and prove it. Use \LaTeX to write your proof nicely. Drop your proof (both pdf and tex) in your OneDrive folder.

1. Let $n \in \mathbb{N}$. If $n \geq 2$, then $\sqrt[n]{2}$ is irrational.
2. If $a \in \mathbb{Z}$, then $4 \nmid (a^2 - 3)$.
3. For any natural numbers a and b , $a = \text{lcm}(a, b)$ if and only if $b \mid a$.
4. Let C be a circle in \mathbb{R}^2 centered at $(1, 1)$. Then either $(2, 3) \notin C$ or $(0, 2) \notin C$. (Note that C is just the circle itself, not the interior).