

## PORTFOLIO PROOFS F

**Instructions.** Choose one of the following statements and prove it. Use  $\text{\LaTeX}$  to write your proof nicely. Drop your proof (both pdf and tex) in your OneDrive folder by the end of the day Wednesday, December 8.

1. Every odd integer is the difference of two squares.
2. Let  $n \in \mathbb{N}$ . Then any set of  $n$  distinct integers has a subset whose sum is divisible by  $n$ .
3. The function  $f : \mathbb{N} \times \mathbb{N} \rightarrow \mathbb{N}$  defined by  $f(x, y) = 2^{x-1}(2y - 1)$  is a bijection.