Introduction to Proofs
IAP 2015
In-class problems for day 4

Problem 7. *Use mathematical induction to show that for every $n \in \mathbb{N}$, the quantity*

$$(3+\sqrt{5})^n + (3-\sqrt{5})^n$$

is an even integer.

Proof.

□

Problem 8. *Let* $(A_i : i \geq 1)$ *be a sequence of countable sets. Show that*

$$\bigcup_{i \in \mathbb{N} \setminus \{0\}} A_i$$

is also countable.

Proof.

□