Test 3

- *Write your full name and email on the first sheet*
- *Time:* ***50 minutes***
- *Books, notes and calculators* ***are not allowed***

Problem 1 Let an integer $n \geq 2$ be given. Two players alternatively name distinct positive divisors of n with the restriction that no multiple of a previously named divisor can be named. The player who is forced to name 1 loses the game. Prove that there is a winning strategy for the player who starts.

Problem 2 Is there a continuous function $f : \mathbb{R} \to \mathbb{R}$ such that

$$f(f(x)) = -x$$

for all $x \in \mathbb{R}$?