1. Prove the sum and product of natural numbers is a natural number.

Hint:
Let \( A = \{ n \in \mathbb{N} : m + n \in \mathbb{N} \forall m \in \mathbb{N} \} \). Show that \( A \) is inductive. Do a similar thing for products.

2. Show that the sum and product of integers is an integer.

Hint:
First show that if \( m, n \in \mathbb{N} \) and \( m < n \) then \( n - m \in \mathbb{N} \) by letting \( A = \{ m \in \mathbb{N} : n - m \in \mathbb{N} \forall n \in \mathbb{N}, n > m \} \). Show \( A \) is inductive.