Exercise sheet 3

Curves and Surfaces, MTH201

1. Find the number of positive divisors of 10^{100}.

2. Let $X := \{0, 1, \ldots, k\}$ and $f : X^n \to \mathbb{Z}$ denote the function $f(x_1, x_2, \ldots, x_n)$. Find $|f^{-1}(m)|$ for some $m \in \mathbb{Z}$.

3. Given a finite set X and a subset A, count the number of subsets of X of cardinality k that are supersets of A.