Exercise sheet 3

Curves and Surfaces, MTH201

1. Count the positive integers that divide at least one of these numbers: $10^{100}, 20^{50}, 30^{40}$.
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.
4. From chapter 4 of the textbook: exercises 8, 11, 19, 24