Problem Set 0

October 2025

Q1

$n = 3$ and $2^3 = 8$ hence 8 subsets:

$$\{\varnothing, \{1\}, \{2\}, \{\varnothing\}, \{1, 2\}, \{1, \varnothing\}, \{2, \varnothing\}, \{1, 2, \varnothing\}\}$$

Q2

Domain of h is $\{0, 1\}^3$, so there are $2^3 = 8$ elements in its domain.
Example:

$$h(x_1, x_2, x_3) = (x_1 + x_2 + x_3) \bmod 2$$

Q3

(1) Set of even integers
(2) Common multiples
(3) Set of rational numbers

Q4

(4) $\{\, x \mid x = n^3,\ n \in \mathbb{Z},\ -4 \leq n \leq 4 \,\}$