1 Symmetric difference

The symmetric difference of two sets A and B is denoted by $A + B$ and defined as follows:

$$A + B = (A \cup B) - (A \cap B)$$

What are the following sets?

i) $\{1, 2, 3, 4\} + \{3, 4, 5\}$

ii) $\{3, 5\} + \{3, 5\}$

iii) $\{3, 5\} + \{1, 2, 3, 4, 5, 6, 7\}$

iv) $\{1, 2, 3\} + \varnothing$

2 Functions

Let $D = \{a, b, c\}$ and $R = \{1, 2\}$. How many distinct functions are there that have D as the domain and R as the range? Note that for any $f : D \rightarrow R$ (recall that this means that f is a function from D to R), f needs to be defined for everything D, but not every member of R need to be an output of f.