

# 1 Set Notation

Sets are denoted with capital letters, e.g. A, B, C. The elements of a set are listed inside curly brackets:

$$A = \{1, 2, 3\} \tag{1}$$

$$B = \{a, b, c\} \tag{2}$$

The union of two sets A and B is denoted  $A \cup B$  and contains all elements of both sets. The intersection  $A \cap B$  contains elements common to both.

$$A \cup B = \{1, 2, 3, a, b, c\} \tag{3}$$

$$A \cap B = \emptyset \bigcup \{\} \tag{4}$$

Sets can also be described using set builder notation:

$$C = \{x | x \in \mathbb{N}, 0 \leq x \leq 5\} \tag{5}$$

$$= \{x | x \text{ is in asdfuh is asfe}, 0 \leq x \leq 5\} \tag{6}$$

This covers the basics of set notation and operations in Latex math mode. Additional set theory topics like power sets, Cartesian products, etc. could be added.

$$bunnies = E(n'_{g+1} | n''_i; 1 \leq i \leq g) \tag{7}$$

$$= \{\text{Who knows, it's all pipes!}\} \tag{8}$$

COM1031 WEEK 2

$$\{a, b\} = \{b, a\} \text{ Still talking about sets.} \tag{9}$$

$$\tag{10}$$

About the size of cartesian products:

$$\text{ayy} \tag{11}$$

$$|\mathbf{A}| * |\mathbf{B}| = |\mathbf{A} \times \mathbf{B}| \tag{12}$$

$$\mathbf{R}^{-1} = \{(b, a) \in \mathbf{B} \times \mathbf{A} | (a, b) \in \mathbf{R}\} \tag{13}$$