## CS 2102 - DMT1 - Fall 2019 — Luther Tychonievich Practice exercise in class friday september 20, 2019

## Practice 04

## **PROBLEM 1** Set definition

Let  $A = \{1, 2, 3, 4\}, B = \{2x \mid (x \in \mathbb{N}) \land x < 5\}, C = \mathcal{P}(\{2, 3\})$ . Show the full set of members in each of the following sets using curly-brace notation (not set-builder or operator-defined notation):

$$B = \underline{(0, 2, 4, 6, 8)}$$

$$C = \underline{((), (2), (3), (2, 3))}$$

$$|C| = \underline{4}$$

$$A \cup B = \underline{(0, 1, 2, 3, 4, 6, 8)}$$

$$A \cap B = \underline{(2, 4)}$$

$$A \setminus B = \underline{(1, 3)}$$

$$A \cup C = \underline{(1, 2, 3, 4, (), (2), (3), (2, 3))}$$

$$A \cap C = \underline{()}$$

$$\{x \mid x \in A \land x \in B\} = \underline{(2, 4)}$$

$$\{x \mid x \in A \land x \in B\} = \underline{(2, 4)}$$

$$\{x \mid x \in A \land x \in B\} = \underline{(0, 1, 2, 3, 4, 6, 8)}$$

$$\{x \mid x \in A \land 2x \in A\} = \underline{(1, 2)}$$

$$\{x \mid x \in A \land 2x \in A\} = \underline{(1, 2)}$$

$$\{x \mid (x \in B) \land (\forall y \in A . x > y)\} = \underline{(6, 8)}$$

$$\{X \mid (X \in C) \land (\exists y \in X . y \in B)\} = \underline{((2), (2, 3))}$$