

CMPU 240 · Language Theory and Computation · Spring 2019  
Quiz 1: Solutions

CMPU 145

- 1 Use set-builder notation to concisely define  $E$  as the set of all positive even integers. (Do not say “ $n$  is a positive even integer”.)

$$E = \{2i \mid i \in \mathbb{Z} \text{ and } i > 0\}$$

- 2 Give two ways of expressing the set containing nothing.

$$\emptyset \text{ or } \{\}$$

- 3  $A = \{a, b\}$  and  $B = \{c, d\}$ . How many elements are in  $A \times B$ ?

$$\text{Four: } \{(a, c), (a, d), (b, c), (b, d)\}$$

- 4 What are the two parts of an inductive proof?

Base case and inductive case

- 5 Name two proof strategies other than induction.

Proof by construction and proof by contradiction

LECTURE 1 / CHAPTER 0

- 6 Define the language (set)  $L$  as containing only the empty string.

$$L = \{\varepsilon\}$$