
Pop Quiz #1

1. Which of the following are true statements? (Mark ”T” or ”F”.)

(a) Dogs have wings only if cats have wings.  \( \checkmark \)
(b) Birds have wings only if cats have wings.  \( \times \)
(c) If cats have wings then birds have wings.  \( \checkmark \)
(c) If cats have wings and dogs have wings, then cats have wings or dogs have wings.  \( \checkmark \)

2. Let \( \mathbb{Z} \) denote the set of integers. Describe, as simply as possible, the following sets in English:

(a) \( \{2k : k \in \mathbb{Z}\} \)
   \( \text{The set of even integers.} \)
(b) \( \{4n : n \in \mathbb{Z}\} \cup \{4n + 2 : n \in \mathbb{Z}\} \)
   \( \text{The set of even integers.} \)
(c) \( \{n : n = 2k \text{ for some } k \in \mathbb{Z}\} \)
   \( \text{The set of even integers.} \)
(d) \( \{n : n = 2k \text{ for all } k \in \mathbb{Z}\} \)
   \( \text{The empty set, } \emptyset. \)
(e) \( \{4k : k \in \mathbb{Z}\} \setminus \{2k : k \in \mathbb{Z}\} \)
   \( \text{The empty set, } \emptyset. \)