

Name: _____

Math 166 - Theory of Computability - Winter 1999

“Pop” Quiz #2

- Write out these sets explicitly (by listing all their elements).
 2^X denotes the powerset of X . Use (x, y) notation for ordered pairs.
 - $2^\emptyset =$
 - $2^{\{\emptyset\}} =$
 - $2^{\{a, b\}} \setminus \{a, b, \{a\}\} =$
 - $\{a, b\} \times \{c\} =$
 - $\{a, b\} \times \{\{c\}\} =$
 - $\{a, b\} \cup (\{b, c\} \cap \{a, c\}) =$
 - $(\{a, b\} \cup \{b, c\}) \cap \{a, c\} =$
- Indicate whether the statements are true or false:
____(c) Caterpillars have wings if dogs have wings.
____(c) Butterflies have wings only if caterpillars have wings.
____(c) For all sets A , if $\emptyset \in 2^A$, then A is empty.
- Describe the following sets in English: (\mathbb{N} is the set of non-negative integers.)
 - $\{n \in \mathbb{N} : n \text{ is greater than each prime in } \mathbb{N}\}$
 - $\{n \in \mathbb{N} : n \text{ is greater than some prime in } \mathbb{N}\}$