

MATH 120 In-class Activity

Day 2

Question 1. Which of the following are sets?

- (a) The textbook for the class.
- (b) The list of words in the textbook in the order they appear.
- (c) The collection of words that appear somewhere in the textbook.
- (d) The number of books in the Queens College Library.
- (e) The collection of books in the Queens College Library.
- (f) The collection of books that include the strings “vcmnergs” and “nfgsdewfs” and “uanqnadfs”.

Question 2. Determine whether the following statements are True or False.

- (a) $7 \mid 91$
- (b) $\emptyset = \{\}$
- (c) $\mathbb{R} = \{\mathbb{R}\}$
- (d) $\mathbb{R} \in \{\mathbb{R}\}$
- (e) $\emptyset \subset \emptyset$
- (f) $\{1\} \subseteq \mathbb{Q}$

Question 3. Let S be the set of all possible colors. Let T be the set of primary colors.

(a) Is S finite or infinite?

(b) Is $T \subseteq S$?

(c) Determine a set U such that $T \subset U \subset S$.

Question 4. Convert each of the following sets into roster notation.

(a) $A = \{y \in \mathbb{Z} : y^3 < 999\}$

(b) $B = \{x : x \in \mathbb{Z} \text{ and } x \text{ is irrational}\}$

Question 5. Convert each of the following sets into set-builder notation.

(a) C is the set of rational numbers strictly between -1 and 1 .

(b) $D = \{\dots, -7, -1, 5, 11, 17, \dots\}$