

## Math 112 - Quiz 2

August 31, 2017

Name \_\_\_\_\_

Score \_\_\_\_\_

Show all work to receive full credit. Supply explanations when necessary. YOU MUST WORK INDIVIDUALLY.

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1. (1 point) Write the set in roster notation:  $\{x \mid x \in \mathbb{N} \text{ and } x \leq 7\}$ .
  
2. (1 point) Write the set  $\{10, 11, 12, 13, 14, 15\}$  in set-builder notation.
  
3. (2 points) List all subsets of the set  $\{a, b, c\}$ .
  
4. (2 points) Give an example of a single set  $B$  that satisfies all three of the following:
$$B \subseteq \mathbb{N}, \quad B \cong \{x, y, z\}, \quad 13 \in B$$
  
5. (4 points) Suppose  $U$  is the set  $U = \{1, 2, 3, 4, 5, 6, 7\}$ , and let  $A = \{2, 4, 6\}$ .
  - (a) True or False?  $U \subseteq A$
  
  - (b) True or False?  $\emptyset \subseteq A$
  
  - (c) Give an example of a set that is equivalent to  $A$ , but not equal to  $A$ .
  
  - (d) Explain why there is not a one-to-one correspondence between  $A$  and  $U$ .