MTH 225: Discrete Structures 1 Asynchronous lesson activities: Module 5A

Directions: For each item below, give a complete response that represents a good-faith effort to be right. You will receive a "check" if each item has such a response, and an "x" otherwise. An "x" will be given if *any* item is left blank, shows insufficient effort, or has responses such as "I don't know" or "I don't understand". Except for the final item (which is done by filling out a Google Form), do all work on separate pages, and submit a scanned black/white PDF **by email** to talbertr@gvsu.edu.

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1. For each of the sets below that are given in set-builder notation, rewrite them in roster notation.
   (a) $\{x : x \text{ is a real number and } x^2 = 1\}$
   (b) $\{x : x \in \mathbb{N} \text{ and } x < 12\}$
   (c) $\{x : x \text{ is the square of an integer and } x < 100\}$
2. For each of the sets below given in roster notation, rewrite them in set-builder notation. There could be more than one way to do each; you might be able to check your work with a Python list comprehension.
   (a) $\{0, 3, 6, 9, 12\}$
   (b) $\{-3, -2, -1, 0, 1, 2, 3\}$
   (c) $\{1, 2, 4, 8, 16, 32, 64, \dots\}$ (Notice this is an infinite set.)
3. Let $A = \{2, 4, 6\}$, $B = \{2, 6\}$, $C = \{4, 6\}$, and $D = \{4, 6, 8\}$. Determine which of these sets are subsets of which other of these sets.
4. If you have questions about the content, please list them. (Otherwise this is optional.)