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For each of the following problems, find the requested set. There is no partial credit on this part of the quiz. For each of the following problems use the sets:

$$U = \{1, 2, 3, 4, 5\}$$

$$X = \{1, 3, 5\}$$

$$Y = \{1, 2, 3\}$$

$$Z = \{3, 4, 5\}$$

1.  $X \cap Y =$

2.  $X \cup Y =$

3.  $Y' =$

4.  $Y \cup (X \cap Z) =$

5.  $X' \cap Y =$

6.  $Y \cap U =$

7.  $Y \cap \emptyset =$

Complete the following problem. Show all work, including an explanation, to receive full credit.

8. Explain why  $n(\mathbb{N}) = n(\mathbb{Z})$ .