

Math 3450 - Homework # 1

Set Builder Notation

1. Find all the elements from the set $\{n \in \mathbb{Z} \mid 1 \leq n^2 \leq 100\}$.
2. Let $X = \{x \in \mathbb{R} \mid x^2 + 1 = 0\}$. What set is X equal to?
3. Find all the elements in the set $A = \{x \in \mathbb{N} \mid x^2 \leq 9\}$.
4. Let $S = \{1, 5, 7\}$ and $T = \{-1, 0, 10, 5\}$. Find all the elements in the set $X = \{a + b \mid a \in S, b \in T\}$.
5. Let $S = \{1, 5, 7\}$. Find all the elements in the set $Y = \{a^2 \mid a \in S\}$.
6. List 5 elements from the set $S = \{2x - 3y \mid x, y \in \mathbb{Z}\}$.
7. Suppose that k is some fixed integer. List 10 elements from the set $S = \{xk \mid x \in \mathbb{Z}\}$.
8. Suppose that r and s are two fixed integers. List 10 elements from the set $A = \{xr + ys \mid x, y \in \mathbb{Z}\}$.
9. Use set-builder notation to write the set of all positive odd numbers.