

Name: _____

1. Identify the type of each object below.

$\{1, 8\}$

$[1, 8]$

$|1 - 8|$

$(1, 8)$

$\langle 1, 8 \rangle$

$[1 - 8]$

2. Label each statement below as true, false, or type error.

$\{2\} \in [1, 3]$

$2 \in \langle 1, 3 \rangle$

$2 \subseteq (1, 3)$

$\{2\} \subsetneq [1, 3]$

3. Give an example of an element of $\mathbb{Q}$ that is not an element of $\mathbb{Z}$.

4. Let k be an integer. Translate the symbolic statement below into an English sentence.

$$k \neq 0 \implies \left((k \in \mathbb{N}) \oplus (-k \in \mathbb{N}) \right) \wedge \left(\frac{1}{k} \in \mathbb{Q} \right)$$

5. Let A be the set of integers a such that $(1 \leq a \leq 5) \vee (a^2 = 9)$.

Let B be the set of integers b such that $(1 \leq b \leq 5) \oplus (b^2 = 9)$.

Describe both A and B by listing all of their elements.

Hint: $3^2 = 9$ and $(-3)^2 = 9$.