Quiz. Proof, Sections 1.1-1.3 Name _____

Each part is 1 point. Total, 20 points.

1. Write out the pronunciation of these.

a) $x \in S$

b) $S \subset T$

c) $\{x \mid x^2 \geq 9\}$

2. a) Give the definition of *generalization*.

b) Give the definition of *conditional sentence*.

3. Are the two sentences equivalent? (Yes or No). If not, give a **specific** counterexample.

a) $x = a$, $cx = ca$

b) $x \in S \cup T$, $x \in S$ and $x \in T$

c) $2x + 2 = 7$, $2z + 2 = 7$.

d) $x = c$, $x^2 = c^2$.

4. Is the letter x a placeholder in the sentence? (Yes or No).

a) Let $f(x) = x^2$

b) $x^2 = c$ iff $x = \pm\sqrt{c}$

c) $x^2 = c$

d) $3x + 4x = 7x$

5. At least one of the above uses x as a placeholder. Write a sentence with exactly the same information using some other letter.

6. Grammar. Some (not necessarily all) of these have **grammatical** mistakes or unconventional usages. Which ones, and what is wrong?

a) S or T b) $S \cup T$ c) A or B

d) $3 \in (-5, \infty]$ e) $\{7\} \in (-\infty, \infty)$ f) $a(b + c) = aB + ac$