NAME: _____

NUMBER: _____

QUIZ over Section 5 in the 'CAT' book; 20 points.

1. (2 pts) Let x, y, and z be real numbers.

(1 pt) Suppose that x lies to the right of y, and y lies to the right of z. What (if anything) can be said about the relationship between x and z?

(1 pt) Suppose that x and y are both negative, and x lies to the left of y on the number line. What (if anything) can be said about the relationship between $-x$ (the opposite of x) and $-y$ (the opposite of y)?

2. (2 pts) State how you would read each of the following sentences. Then, state whether the sentence is (always) true, (always) false, or ST/SF:

(1 pt) $-1 < -3$

(1 pt) $x \geq x$

3. (2 pts) Fill in the blanks:

Being 'bigger than' has to do with being _____ .

Being 'greater than' has to do with being _____ .

4. (3 pts) (1 pt) Consider the set $S = \{0, 2, 4\}$. What is the greatest member? The least?

GREATEST: LEAST:

(1 pt) Consider the set $S = \{-1, -2, -3, \dots\}$. Does S have a greatest member? A least member? If so, what are they?

GREATEST (if it exists): LEAST (if it exists):

(1 pt) Consider the set of nonnegative real numbers, $[0, \infty)$. Does this set have a greatest member? A least member?

GREATEST (if it exists): LEAST (if it exists):

5. (2 pts) Remember that mathematical sentences are often read in slightly different ways, depending on their context. How would you read the sentence '$x > 1$' in each of the following contexts?

(a) For all $x > 1$ ...

(b) Let $x > 1$.

6. (2 pts) Translate each phrase into a mathematical sentence:

(1 pt) x is at most 3

(1 pt) t is at least -2

7. (2 pts) Translate each sentence into an English phrase using the words 'at least' or 'at most':

(1 pt) $x \geq 4$

(1 pt) $y \leq 2$

8. (1 pt) Give three sentences of the form $y = k$. (Each sentence should use the variable y, but not k.)

FIRST:

SECOND:

THIRD:

9. (2 pts) Give an example of:

an INEQUALITY in 2 variables:

an EQUATION in one variable:

10. (2 pts) Suppose that the sentence $x(x-1)(x+3) = 0$ is true. What (if anything) can be said about x?