

NAME: _____

NUMBER: _____

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

1. Let x , y , and z be real numbers.
(2 pts) (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. State how you would read each of the following sentences. Then, state whether the sentence is (always) true, (always) false, or ST/SF:
(2 pts) (1 pt) $-1 < -3$
- (1 pt) $x \geq x$
3. Fill in the blanks:
(2 pts) Being 'bigger than' has to do with being _____ .
Being 'greater than' has to do with being _____ .
4. (1 pt) Consider the set $S = \{0, 2, 4\}$. What is the greatest member? The least?
(3 pts) 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. 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?
(2 pts) (a) For all $x > 1$...
(b) Let $x > 1$.

6. Translate each phrase into a mathematical sentence:
(2 pts) x is at most 3

(1 pt) t is at least -2

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

(1 pt) $x \geq 4$

(1 pt) $y \leq 2$

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

FIRST:

SECOND:

THIRD:

9. Give an example of:
(2 pts) an INEQUALITY in 2 variables:

an EQUATION in one variable:

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