MATH 140A Review: Quantifiers and Negation

Facts to Know:

Quantifiers:

- **(For all ∀)**

- **(There exists ∃)**

Negation:

- (*not* **for all**)

- (*not* **there exists**)

When negating a statement with quantifiers, remember to

- First,

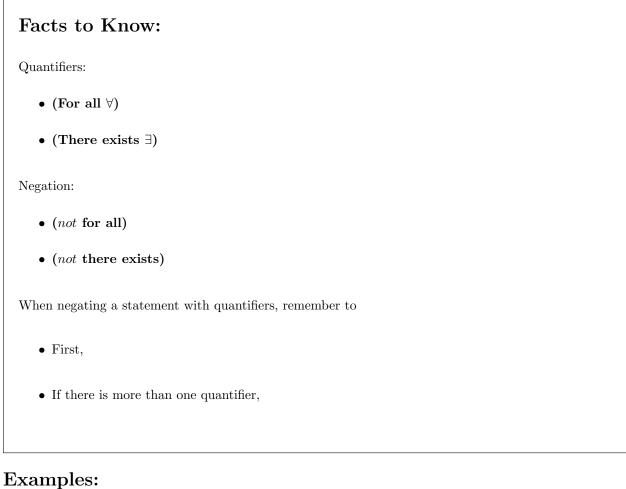- If there is more than one quantifier,

Examples:

1. Negate the following statement: Every human has an X-chromosome.

2. Negate the following statement: There exists a human with a Y-chromosome.

3. Negate the following statement: Let a_n be a sequence of real numbers and let L be a real number. For every $\epsilon > 0$, there exists $N \in \mathbb{N}$ such that for all $n \in \mathbb{N}$, if $n \geq N$, then $|a_n - L| < \epsilon$.