EXAMPLES OF

RELATED UNIVERSAL CONDITIONAL STATEMENTS.

When the original conditional has the form: $\forall x \in D, P(x) \to Q(x)$,

where $P(x) = $ "$x < 0$", $Q(x) = $ "$x^2 > 0$", and $D = \mathbb{R}$.

The <u>Original Universal Conditional</u> statement is:
$$\forall x \in \mathbb{R}, \text{ if } x < 0, \text{ then } x^2 > 0.$$

The <u>Universal Converse</u> is:
$$\forall x \in \mathbb{R}, \text{ if } x^2 > 0, \text{ then } x < 0.$$

The <u>Universal Inverse</u> is:
$$\forall x \in \mathbb{R}, \text{ if } x \geq 0, \text{ then } x^2 \leq 0.$$
$$(x \not< 0) \qquad\qquad (x^2 \not> 0).$$

The <u>Universal Contrapositive</u> is
$$\forall x \in \mathbb{R}, \text{ if } x^2 \leq 0, \text{ then } x \geq 0.$$

THESE CAN ALSO BE REWORDED USING
"sufficient", "Necessary", "only if", etc.

THE <u>NEGATION</u> of the statement S
where $S = $ "$\forall x \in \mathbb{R}, \text{ if } x < 0, \text{ then } x^2 > 0$"

is
$\sim S = $ "$\exists x \in \mathbb{R} \text{ such that } x < 0 \text{ and } x^2 \not> 0.$"