

Key

Math 150 Quiz 3

1. For each given conditional statement (or statement that can be written as a conditional), write (i) the converse, (ii) the inverse, and (iii) the contrapositive in if...then form. In part (b), it may be helpful to first restate the given statement in if...then form.

a) If you lead, then I will follow.

b) Milk contains calcium.

a) (i) If I will follow, then you lead.

(ii) If I don't lead, then you will not follow.

(iii) If I will not follow, then you do not lead.

b) "If it is milk, then it contains calcium."

(i) If it contains calcium, then it is milk.

(ii) If it is not milk, then it does not contain calcium.

(iii) If it does not contain calcium, then it is not milk.

2. Find the truth value of each statement. Assume that p and r are false, and q is true.

a) $\sim q \rightarrow r$

b) $(p \rightarrow \sim q) \wedge (p \rightarrow r)$

a) $\sim q \rightarrow r$

$\sim T \rightarrow F$

$F \rightarrow F$

(T)

b) $(p \rightarrow \sim q) \wedge (p \rightarrow r)$

$(F \rightarrow \sim T) \wedge (F \rightarrow F)$

$(F \rightarrow F) \wedge (F \rightarrow F)$

$T \wedge T$

(T)