1. Use truth tables to show that $A \implies B$ and $\sim A \vee B$ are logically equivalent.

2. Suppose x, y are integers. Let P be the statement that if x and y are both odd integers, then xy is an odd integer.

(a) Write down the negation of P.

(b) Write down the converse of P.

(c) Write down the contrapositive of P.

(d) Use a direct proof to show that P is true.

(e) Use a proof by contradiction to show that P is true.

(f) Determine whether or not the converse of P is true.