

## Section 2.2: Indirect proofs

An indirect proof is a proof created by using the contrapositive of a given conditional statement.

Recall,  $P \rightarrow Q \equiv$

Create the contrapositive for the following statements:

If it is sunny outside, then we will go skiing.

If  $n$  is even, the  $2n$  is odd.

Examples of indirect proofs.

1. Prove using an indirect proof the following statement.

If  $3n$  is odd, then  $n$  is odd.

2. Prove using an indirect proof the following statement.

If  $m \times n$  is even, then either  $m$  or  $n$  must be even.