

# **Discrete Mathematics**

## **Logic and Proof**

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# Proof by Contraposition

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This type of proof is considered for problems whose hypothesis ( $p$ ) is hard to work with.

## Example 1

Rephrase the contraposition and prove it.

If  $3n + 7$  is even then  $n$  is odd.

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## Example 2

Prove: If  $x$  is irrational then  $2x$  is irrational.

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## Exercise

Prove: If  $n^2$  is even then  $n$  is even.