Specialist Test 1 Notes – Year 11 2023

By Ajay Bisnath

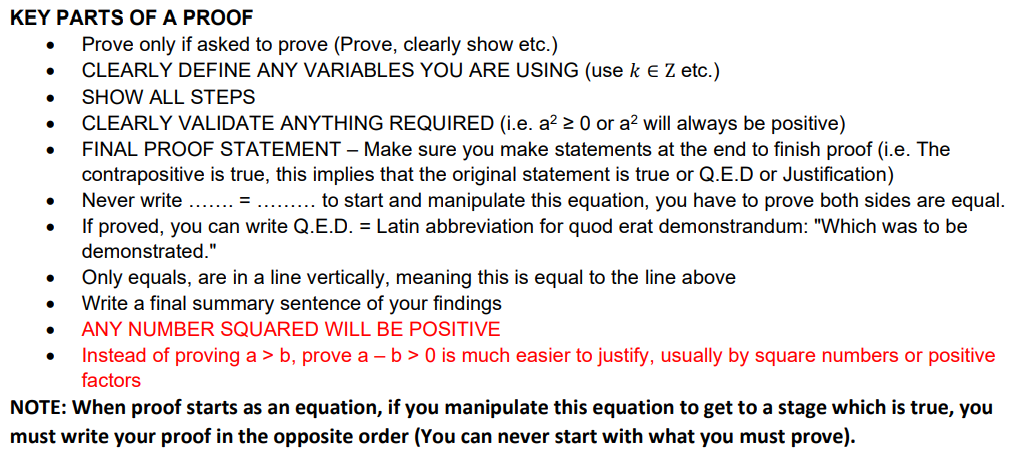
**Remember QED!!**

**Sets of Numbers:**

* + - natural numbers
  + - all integers
  + - all rational numbers
    - numbers that can be written as where and are both integers ( 0)
  + - all real numbers

**Representing Numbers:**

* If n is even: n = 2k **for some** k
* If n is odd: n = 2k + 1 for some k
* If n is a multiple of x/is divisible by x: n = xk for some k
* If n is rational: n = for some (a, b)

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**Proof by Contrapositive (If not *B* then not *A*):**

* Graphical user interface, text, application

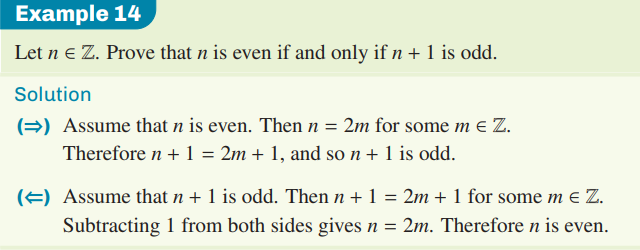
  Description automatically generatedThe contrapositive of a true conditional statement is also true and vice-versa.

**Disproving Statements:**

Universal quantification: ‘For all’ (∀) – Every case must be true

Existential quantification: ‘There exists’ (∃) – Only need one example to prove/disprove

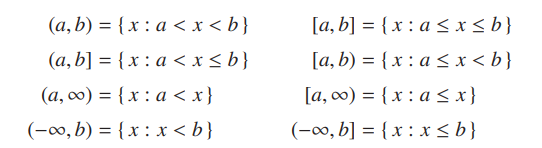
**Proving Equivelant Statements:**

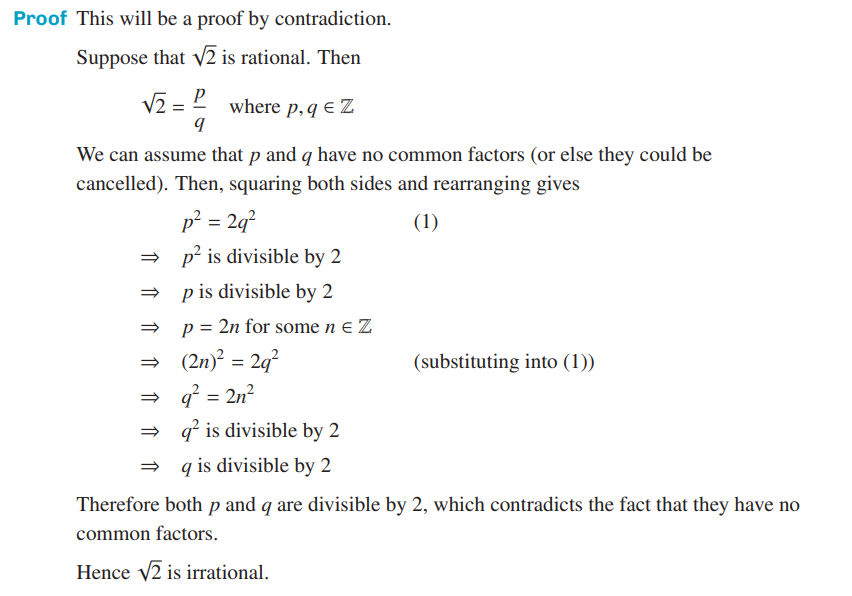
* E.g.: **A if and only if B** represents both the original and converse statement as true

**Negation:**

* The statement which asserts the opposite
  + E.g., the negation of the statement:
    - '*n* is greater than 12'
    - --> '*n* is less than or equal to 12’
  + and becomes or, or becomes and

**Interval Notation:**

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**Proof by Contradiction:**

Text

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