Section: \_

## To Understand a statement, Explore!!!

## Techniques of Exploration<sup>a</sup>

- 1. Look at lots of *examples*
- 2. Use prior knowledge
- 3. Make educated *guesses* (conjectures)
- 4. Use examples and prior knowledge to *check* your guesses
- 5. Work together and think out loud!

<sup>a</sup>Adapted and rearranged from Sundstrom, pg 3-4

Explore the following statements. Once you understand it, try to *guess* if it is True or False, and write down how certain you are about each guess. You must justify each guess.

 $\mathbf{P}$ : " $(2^n - 1)$  is prime for every natural number *n*."

 $\mathbf{Q}$ : "The sum of one even number with a second even number produces an even number."

 ${\bf R}\,$  : "The sum of one odd number with a second odd number produces an odd number."

 ${\bf S}\,$  : "There is no biggest natural number."

**A** : "There is a biggest prime number."

**B** : "There are two integers a, b so that  $\sqrt{2} = \frac{a}{b}$ ."

 ${\bf G}\,$  : "Every integer  $n\geq 2$  is the sum of two (possibly different) prime numbers."