Name: _____

Read and take notes on Sections 8.1, 8.2, 8.3: Euclid's Theorem, Prime Number Theorem, Primes in Sequences and 18.4: Strong Primes.

Reading Questions

1. (a) Who proved the Prime Number Theorem, and in what year?

   (b) What does the Prime Number Theorem say? (Make sure to explain what the symbol $\sim$ means.)

   (c) According to the Prime Number Theorem, about how many primes are there less than 1000?

2. (a) What does Dirichlet's theorem say in the cases $a = 4$, $b = 1$ and $a = 4$, $b = 3$?

   (b) About how many primes congruent to 1 mod 4 are there less than 1000?

   (c) About how many primes congruent to 3 mod 4 are there less than 1000?

3. (a) What is the heuristic version of the Prime Number Theorem used in the algorithm for strong primes? (This is at the very end of the section.)

   (b) What is the heuristic version of Dirichlet's theorem used in the algorithm for strong primes?

4. What struck you in this reading? What is still unclear? What remaining questions do you have?