

Fall 2022, Math 522: Preliminary Problem Set 10
Due: Friday, November 4th, 2022
Locating Large Primes

Preliminary problems. These problems should be completed before discussion.

(P1) Given $m \geq 2$, use limits to find the density of the set

$$A = \{a \geq 1 : \gcd(a, m) > 1\}.$$

Your answer should depend on m .

(P2) Write the formal statement of the Prime Number theorem, along with an “intuitive interpretation” of it **in your own words**.

(P3) Write the formal statement of Dirichlet’s theorem (the strong version), along with an “intuitive interpretation” of it **in your own words**.