Problem 2
Based on the division problem from last lesson, any positive number \( m \) can be represented uniquely as one of \( 6n, 6n + 1, 6n + 2, 6n + 3, 6n + 4, 6n + 5 \) for some nonnegative integer \( n \). If \( m \) is prime, it doesn’t have any divisors other than 1 and itself. \( 6n, 6n + 2 \) and \( 6n + 4 \) have divisor 2. \( 6n + 3 \) has divisor 3. So they can’t be a prime greater than 3. Therefore a prime number greater than 3 must be able to be represented as either \( 6n + 1 \) or \( 6n + 5 \) for some nonnegative integer \( n \).