1.26

Let {p1, p2,...,pr} be a set of prime numbers, and let N = p1p2 ··· pr + 1

1. The first step is let q be a value that can divide N, and suppose it is one of the p’s in the equation.
2. Now if we rearrange the equations we would have 1 = N – p1p2….pr ≡ 0 (mod q)
3. Since q would be able to divide both N and p1p2…pr we would be left with q | 1, which is not possible. Which proves that q can’t be equal to any of the p’s.
4. Next we will assume there are a finite number of primes. Meaning we could list every prime in our list p1p2…pr.
5. However, our equation produces a new prime number every time that is not in our list which would contradict the assumption that there is a finite amount of prime numbers, meaning there are infinitely many.