

1. List of Theorems and Definitions

Definition 2.1 (Prime numbers)	2
Theorem 2.2	2
Theorem 2.3 (Euclid)	2
Theorem 2.4	3
Theorem 2.5	3

2. Prime numbers

Definition 2.1 (Prime numbers). A natural number is called a *prime number* if it is greater than 1 and cannot be written as the product of two smaller natural numbers.

Theorem 2.2. *Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do.*

Theorem 2.3 (Euclid). *There are infinitely many primes.*

Corollary 2.3.1. *There is no largest prime number.*

Corollary 2.3.2. *There are infinitely many composite numbers.*

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Theorem 2.4. *Lorem ipsum dolor sit amet, consectetur adipiscing.*

Theorem 2.5. *There are arbitrarily long stretches of composite numbers.*

Proof. For any $n > 2$, consider

$$n! + 2, \quad n! + 3, \quad \dots, \quad n! + n.$$



3. Appendix (restated or deferred)

Definition 2.1 (Prime numbers). A natural number is called a *prime number* if it is greater than 1 and cannot be written as the product of two smaller natural numbers.

Theorem 2.3 (Euclid). *There are infinitely many primes.*

Proof. Suppose to the contrary that p_1, p_2, \dots, p_n is a finite enumeration of all primes. Set $P = p_1 p_2 \dots p_n$. Since $P + 1$ is not in our list, it cannot be prime. Thus, some prime factor p_j divides $P + 1$. Since p_j also divides P , it must divide the difference $(P + 1) - P = 1$, a contradiction. \square

Corollary 2.3.2. *There are infinitely many composite numbers.*

Theorem 2.4. *Lorem ipsum dolor sit amet, consectetur adipiscing.*

Theorem 2.5. *There are arbitrarily long stretches of composite numbers.*

Proof. For any $n > 2$, consider

$$n! + 2, \quad n! + 3, \quad \dots, \quad n! + n.$$

\square

4. Only restate Theorem or Corollary

Theorem 2.3 (Euclid). *There are infinitely many primes.*

Corollary 2.3.2. *There are infinitely many composite numbers.*

Theorem 2.4. *Lorem ipsum dolor sit amet, consectetur adipiscing.*

Theorem 2.5. *There are arbitrarily long stretches of composite numbers.*

5. Only restate 'Result'

Corollary 2.3.2. *There are infinitely many composite numbers.*

Theorem 2.4. *Lorem ipsum dolor sit amet, consectetur adipiscing.*

6. Only restate (Theorem and 'Result') or Definition

Definition 2.1 (Prime numbers). A natural number is called a *prime number* if it is greater than 1 and cannot be written as the product of two smaller natural numbers.

Theorem 2.4. *Lorem ipsum dolor sit amet, consectetur adipiscing.*

7. Only restate if some key contains ‘fi’

Definition 2.1 (Prime numbers). A natural number is called a *prime number* if it is greater than 1 and cannot be written as the product of two smaller natural numbers.

8. Only display if (name is not none) or is 'Result'

Definition 2.1 (Prime numbers). A natural number is called a *prime number* if it is greater than 1 and cannot be written as the product of two smaller natural numbers.

Theorem 2.3 (Euclid). *There are infinitely many primes.*

Corollary 2.3.2. *There are infinitely many composite numbers.*

Theorem 2.4. *Lorem ipsum dolor sit amet, consectetur adipiscing.*

9. Only restate up to <euclid_proof>

Definition 2.1 (Prime numbers). A natural number is called a *prime number* if it is greater than 1 and cannot be written as the product of two smaller natural numbers.

Theorem 2.3 (Euclid). *There are infinitely many primes.*

Proof. Suppose to the contrary that p_1, p_2, \dots, p_n is a finite enumeration of all primes. Set $P = p_1 p_2 \dots p_n$. Since $P + 1$ is not in our list, it cannot be prime. Thus, some prime factor p_j divides $P + 1$. Since p_j also divides P , it must divide the difference $(P + 1) - P = 1$, a contradiction. □