

Number Theory

TSS Math Club

March 2023

1 Integers

1.1 Division with Remainder

1.1.1 Example

Find the quotient and remainder when 102 is divided 5.

1.1.2 Example

Find the quotient and remainder when 213 is divided 7.

1.2 Divisibility

1.2.1 Definition

1.2.2 Notation

$a|b$

1.2.3 Theorems

- $a|b$ and $b|c \implies a|c$
- $a|b \implies a|cb$
- $a|b$ and $a|c \implies a|mb + nc$

1.3 GCD and LCM

1.3.1 Definition

- GCD:
- LCM:

1.3.2 Notations

- GCD:
- LCM:

1.3.3 Example

- $(10,5)=$ $[10,5]=$
- $(3,2)=$ $[3,2]=$
- $(0,n)=$ $[0,n]=$
- $(n,1)=$ $[n,1]=$