📘 SS1 Mathematics – Week 2

Theme: Number and Numeration
Topic: Modular Arithmetic

🧠 What Is Modular Arithmetic?

Modular arithmetic is a way of doing math where numbers **"wrap around"** after reaching a certain value, just like the **hands of a clock**.

Example:
If it's 9 o'clock and you add 5 hours, you get 14. But clocks wrap after 12, so 14 becomes **2** o'clock.

🔁 Meaning of "mod"

mod means **divide and take the remainder**

For example:
17 mod 5 = remainder when 17 is divided by 5
✅ **Answer: 2**

💡 Mathematically:

We write: **17 ≡ 2 (mod 5)**
This means 17 gives a remainder of 2 when divided by 5.

✅ 10 Fully Explained Examples

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1. What is 17 mod 5?
17 ÷ 5 = 3 remainder **2**
✅ Answer: **2**

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2. What is 25 mod 6?

25 ÷ 6 = 4 remainder **1**

✅ Answer: **1**

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3. (14 + 7) mod 5

14 + 7 = 21

21 ÷ 5 = 4 remainder **1**

✅ Answer: **1**

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4. (16 × 3) mod 4

16 × 3 = 48

48 ÷ 4 = 12 remainder **0**

✅ Answer: **0**

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5. (12 − 9) mod 5

12 − 9 = 3

3 ÷ 5 = 0 remainder **3**

✅ Answer: **3**

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6. What is 29 mod 7?

29 ÷ 7 = 4 remainder **1**

✅ Answer: **1**

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7. What is 5 hours after 10 o'clock? (mod 12)

10 + 5 = 15

15 mod 12 = **3**

✅ Answer: **3 o'clock**

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8. Wednesday + 10 days = ? (mod 7)

Wednesday = 3

3 + 10 = 13

13 mod 7 = **6** → Saturday

✅ Answer: **Saturday**

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9. (34 + 18 + 9) mod 10

34 + 18 + 9 = 61

61 ÷ 10 = 6 remainder **1**

✅ Answer: **1**

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10. (40 × 6 − 5) mod 7

40 × 6 = 240

240 − 5 = 235

235 ÷ 7 = 33 remainder **4**

✅ Answer: **4**

📌 **Final Tips**

- Think of **mod** as “what’s left after dividing”.
- Always simplify expressions inside brackets first.
- Practice with clocks and days of the week—they're great mod examples!