# 📗 MATHS NOTEBOOK — Day 3 Update

**Chapter: Relations & Functions — Part 3**

## Equivalence Relations

A relation is an equivalence relation if it satisfies:

- Reflexive: (a, a) ∈ R
- Symmetric: (a, b) ∈ R → (b, a) ∈ R
- Transitive: (a, b), (b, c) ∈ R → (a, c) ∈ R

## Examples

- aRb if a – b = 0 → Equivalence relation
- aRb if a = b → Equivalence relation
- a divides b → Not symmetric → Not equivalence

## Functions Recap

- A function assigns **each input exactly one output**
- Domain → Inputs
- Codomain → All possible outputs
- Use **vertical line test** to check if a relation is a function

## Non-function Example

{(1,2), (1,3)} → Not a function (one input, multiple outputs)