**Division and Properties of Division** 

# **Understanding Division**

- Division means sharing or grouping a number into equal parts.
- It is the opposite of multiplication.
- In a division sentence: Dividend ÷ Divisor = Quotient (and sometimes Remainder).
- **Dividend** The number to be divided.
- **Divisor** The number we divide by.
- **Quotient** The answer after dividing.
- Remainder The leftover after dividing (if any).
- Symbol used for division: ÷ or /.

## **Easy Facts About Division**

- If 12 ÷ 4 = 3, then 3 × 4 = 12
- Any number ÷ 1 = the same number
- Any number ÷ itself = 1
- 0 ÷ any number = 0
- Division makes sharing fair and even

## **Examples with Solutions**

Example: Divide 16 by 4

**Solution:**  $16 \div 4 = 4$ 

 $(4 \times 4 = 16, \text{ so quotient is } 4)$ 

Example: Divide 30 by 5

**Solution:** 30 ÷ 5 = 6

 $(6 \times 5 = 30, \text{ so quotient is } 6)$ 

Example: Divide 49 by 6

**Solution:**  $49 \div 6 = 8$  remainder 1

 $(6 \times 8 = 48, 1 \text{ is left} \rightarrow \text{remainder } 1)$ 

Example: Divide 24 by 3

**Solution:** 24 ÷ 3 = 8

 $(3 \times 8 = 24$ , so quotient is 8)

Example: Divide 7 by 2

**Solution:**  $7 \div 2 = 3$  remainder 1

 $(2 \times 3 = 6, 1 \text{ is left} \rightarrow \text{remainder 1})$ 

### **Summary Points**

- Division helps in equal sharing and grouping.
- Main parts of division are dividend, divisor, quotient, and remainder.
- Division is the reverse of multiplication.
- You can check division answers by multiplying.
- Division is used in real life for fair sharing and grouping activities.

#### **Understanding Properties of Division**

- Properties of division help us understand how division works with different numbers.
- These rules make division easier to solve and remember.
- Division is related to multiplication but follows its own special rules.

### **Important Properties of Division**

#### **Property 1: Division by 1**

Any number divided by 1 remains the same

**Example:** 25 ÷ 1 = 25

Property 2: Division of a Number by Itself

Any number divided by itself is always 1

**Example:** 12 ÷ 12 = 1

**Property 3: Division of 0 by Any Number** 

0 divided by any number is 0

**Example:**  $0 \div 8 = 0$ 

Property 4: Division by 0 is Not Defined

We cannot divide any number by 0

**Example:**  $10 \div 0 \rightarrow \text{Not possible (undefined)}$ 

**Property 5: Division is Not Commutative** 

Changing the order of numbers changes the answer

**Example:** 20 ÷ 5 ≠ 5 ÷ 20

#### **Examples with Solutions**

**Example:** 18 ÷ 1

**Solution:** 18 (because any number ÷ 1 = the same number)

**Example:** 7 ÷ 7

**Solution:** 1 (because any number ÷ itself = 1)

**Example:** 0 ÷ 9

**Solution:** 0 (zero ÷ any number = 0)

**Example:** 15 ÷ 0

**Solution:** Not defined (we can't divide by 0)

**Example:** 30 ÷ 5 and 5 ÷ 30

**Solution:**  $30 \div 5 = 6$ , but  $5 \div 30 = 1/6$ 

Shows that division is not commutative

#### **Summary Points**

- Dividing any number by 1 gives the same number.
- Dividing a number by itself always gives 1.
- 0 divided by any number is always 0.
- Dividing by 0 is not possible.
- Division is not commutative (changing order gives different answers).