



Class 9 Maths – Chapter 3



Exercise Set 3.1 – The World of Numbers

Based on the **new Ganita Manjari Grade 9 Part I** textbook. Exercise Set 3.1 appears on page 43.



Q1. Merchant and Copper Ingots

A merchant receives **15 copper ingots for every 2 bags of spices**. If he brings **12 bags**, how many copper ingots will he receive?



Solution:

For 2 bags $\rightarrow$ 15 ingots

For 12 bags:

$$12 \div 2 = 6$$

So,

$$6 \times 15 = 90$$



Answer: 90 copper ingots



Q2. Ishango Bone – Prime Numbers

The sequence is:

11, 13, 17, 19



These numbers are **prime numbers** between 10 and 20.

The next prime numbers are:

23, 29, 31



Answer: 23, 29, 31

Q3. Are Natural Numbers Closed Under Subtraction?

Natural Numbers:

$$\mathbf{N = \{1, 2, 3, 4, 5, \dots\}}$$

For subtraction, consider:

Example 1:

$$5 - 3 = 2 \quad \checkmark$$

2 is a natural number.

But:

Example 2:

$$3 - 5 = -2 \quad \times$$

-2 is **not** a natural number.

Therefore, the difference of two natural numbers is **not always a natural number**.

 **Answer: No, Natural Numbers are NOT closed under subtraction.**

 Example:

$$5 - 3 = 2 \quad \checkmark$$

$$3 - 5 = -2 \quad \times$$

Q4. Ancient Indian Finger Counting

Each finger has **3 joints**.

We use the **thumb to count the joints of the other four fingers**.

Number of fingers counted = 4

Joints per finger = 3

So,

$$4 \times 3 = 12$$

 **Answer: We can count 12 on one hand.**

☀ This is related to the **base-12 counting system**, because the number **12** naturally arises from counting the three joints on each of the four fingers.

ANSWER KEY

- ① **90 copper ingots**
- ② **23, 29, 31**
- ③ **No**, Natural Numbers are not closed under subtraction.
- ④ **12**; this connects with the **base-12 counting system**.