

Integers

(i) **Natural Number** := 1, 2, 3, 4, 5, ...

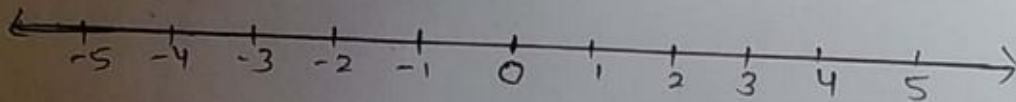
A number which starts from 1 to ∞ is known as natural number.

(ii) **Whole Number** := 0, 1, 2, 3, 4, 5, ...

A number which starts from 0 to ∞ is known as whole number.

(iii) **Integer Number** :-

A number that can be positive, negative or zero is called Integer No.



Positive integer \rightarrow 1, 2, ..., ∞

Negative integer \rightarrow $-\infty$, ..., -2, -1.

~~*~~ Zero (0) is neither positive nor negative integer.

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Algebra

(#) Addition of integers:-

$+ \quad - \quad = \quad -$
 $[+6 - 4 = 2]$
 $- \quad + \quad = \quad -$
 $[-6 + 4 = -2]$
 $+ \quad + \quad = \quad +$
 $[+6 + 4 = 10]$
 $- \quad - \quad = \quad +$
 $[-6 - 4 = -10]$

(#) Addition Properties \Rightarrow

(i) Commutative \Rightarrow $a + b = b + a$

ex:- $2 + 4 = 4 + 2$
 $6 = 6$

(ii) Associative \Rightarrow $a + (b + c) = (a + b) + c$

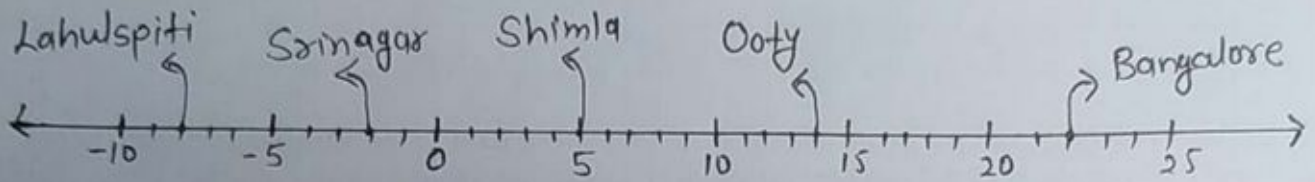
ex:- If $a \leftarrow 2, b \leftarrow 4, c \leftarrow 5$
so $2 + (4 + 5) = (2 + 4) + 5$
 $2 + 9 = 6 + 5$
 $11 = 11$

(iii) Identity \Rightarrow $a + 0 = a = 0 + a$

ex:- $5 + 0 = 5 = 0 + 5$

Exercise = 1.1

Q:-① Following number line shows the temperature in degree celsius ($^{\circ}\text{C}$) at different places on a particular day.



(a) observe this number line and write the temperature of the places marked on it.

Ans:-

Places	temperature
Bangalore	22°C
Ooty	14°C
Shimla	5°C
Srinagar	-2°C
Lahulspiti	-8°C

(b) What is the temperature difference between the hottest and the coldest places among the above?

Ans:- The hottest place is Bangalore = 22°C
The coldest place is Lahulspiti = -8°C

$$\begin{aligned}\text{So Difference} &= 22^{\circ}\text{C} - (-8^{\circ}\text{C}) \\ &= 22^{\circ}\text{C} + 8^{\circ}\text{C} \\ &= 30^{\circ}\text{C}\end{aligned}$$

(c) what is the temperature difference between Lehulspiti and Srinagar?

Ans:- The temperature of Srinagar = -2°C

The temperature of Lehulspiti = -8°C

So, Difference = $-2^{\circ}\text{C} - (-8^{\circ}\text{C})$
 $= -2^{\circ}\text{C} + 8^{\circ}\text{C}$
 $= 6^{\circ}\text{C}$

(d) Can we say temperature of Srinagar and Shimla taken together is less than the temperature at Shimla? Is it also less than the temperature at Srinagar?

Ans:- The temperature of Srinagar and Shimla = $5^{\circ}\text{C} + (-2^{\circ}\text{C})$
 $= 5^{\circ}\text{C} - 2^{\circ}\text{C}$
 $= 3^{\circ}\text{C}$

and temperature of Shimla = 5°C

Therefore $3^{\circ}\text{C} < 5^{\circ}\text{C}$

So, yes temperature of Srinagar and Shimla taken together is less than the temperature at Shimla.

And temperature of Srinagar = -2°C

So $3^{\circ}\text{C} > -2^{\circ}\text{C}$

No, it is not less than the temperature at Srinagar.

Q:- (2) In a quiz, positive marks are given for correct answer and negative marks are given for incorrect answer. If Jack's scores in five successive rounds were 25, -5, -10, 15 and 10, what was his total at the end?

Soln:- Jack's scores in five successive rounds are 25, -5, -10, 15 and 10.

$$\begin{aligned}\text{So Total marks got by Jack} &= 25 + (-5) + (-10) + 15 + 10 \\ &= 25 - 5 - 10 + 15 + 10 \\ &= 25 - 15 + 15 + 10 \\ &= 35\end{aligned}$$

Thus, 35 marks are got by Jack in a quiz.

Q:- (3) At Srinagar temperature was -5°C on Monday and then it dropped by 2°C on Tuesday. What was the temperature of Srinagar on Tuesday? On Wednesday, it rose by 4°C . What was the temperature on this day?

Soln:- On Monday, temperature at Srinagar = -5°C
On Tuesday, temperature dropped = 2°C
 \therefore Temperature on Tuesday = $-5^{\circ}\text{C} - 2^{\circ}\text{C} = -7^{\circ}\text{C}$
On Wednesday temperature rose up = 4°C
 \therefore Temperature on Wednesday = $-7^{\circ}\text{C} + 4^{\circ}\text{C} = -3^{\circ}\text{C}$

Q:- (4) A plane is flying at the height of 5000 m above the sea level. At a particular point, it is exactly above a submarine floating 1200 m below the sea level. What is the vertical distance between them?

Soln:-

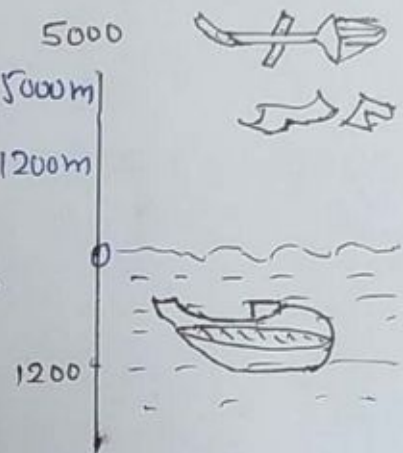
Height of a plane above the sea level = 5000 m
Floating a submarine below the sea level = 1200 m

So, vertical distance between the plane and the submarine

$$= 5000 \text{ m} + 1200 \text{ m}$$

$$= 6200 \text{ m}$$

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Q:- (5) Mohan deposits Rs 2,000 in his bank account and withdraws Rs 1642 from it, the next day. If withdrawal of amount from the account is represented by a negative integer, then how will you represent the amount deposited? Find the balance in Mohan's account after the withdrawal.

Soln:- Deposit amount = Rs 2000

Withdrawal amount = Rs 1642

$$\therefore \text{Balance} = 2000 - 1642 = \text{Rs } 358$$

Thus, the balance in Mohan's account after withdrawal is Rs 358.

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