

**DELHI PUBLIC SCHOOL, JAMMU**  
**FOUNDATION WORKSHEET**  
**SESSION (2020-2021)**

**CLASS: VII**

**SUBJECT: MATHS**

**TOPIC: INTEGERS**

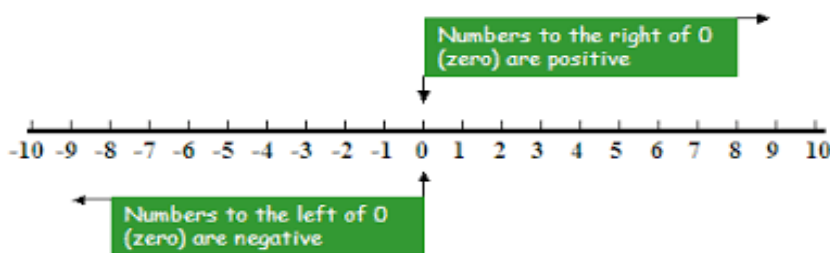
**Introduction:**

The set of negative numbers along with the set of whole numbers are known as integers.

{ ....., -4, -3, -2, -1, 0, 1, 2, 3, 4,.....}.

The numbers -1, -2, -3, -4,.... are called negative integers and the numbers 1, 2, 3, 4 ... are called positive integers. Number '0' is considered neither a positive nor a negative integer.

Integers have either a positive sign (+) or a negative sign (-). These two signs define their direction or position on the number line.



Given below some situations, where the positive and negative integers are used.

<b>Positive Integers</b>	<b>Negative Integers</b>
North	South
East	West
Right	Left
Above zero	Below zero
Profit	Loss
Height	Depth
Temperature above 0°C	Temperature below 0°C

**Absolute value of an Integer**

Absolute value of an Integer is the value of the integer without considering its sign. Absolute value of an integer  $n$  is denoted by  $|n|$ .

**If  $n$  is an integer, then**

Absolute value of  $+n$  is  $|+n| = n$

Absolute value of  $-n$  is  $|-n| = n$

Examples:

Q1: Find the absolute value of  $-3$ .

Sol:  $|-3| = 3$

Q2: Add the integers  $+15$ ,  $-4$ ,  $+8$  and  $-6$ .

Sol:  $+15 + (-4) + 8 + (-6)$   
 $= +23 - 10$   
 $= +13$

Q3: Subtract  $+94$  from  $-105$ .

Sol:  $-105 - (+94)$   
 $= -105 - 94$   
 $= -199$

Q4: Write a negative integer and a positive integer whose sum is  $-5$ .

Sol:  $-8$  and  $+3$

Q5: In a quiz, positive marks are given for correct answers and negative marks are given for incorrect answers. If Jack's scores in five successive rounds were  $25$ ,  $-5$ ,  $-10$ ,  $15$  and  $10$ , what was his total at the end?

Sol: Jack's scores in five successive rounds are  $25$ ,  $-5$ ,  $-10$ ,  $15$ , and  $10$ . Total score of Jack at the end will be the sum of these scores.

Therefore, Jack's total score at the end  $= 25 - 5 - 10 + 15 + 10 = 35$

Q6: At Srinagar temperature was  $-5^{\circ}\text{C}$  on Monday and then it dropped by  $2^{\circ}\text{C}$  on Tuesday.

What was the temperature of Srinagar on Tuesday? On Wednesday, it rose by  $4^{\circ}\text{C}$ . What was the temperature on this day?

Solution : Temperature on Monday  $= -5^{\circ}\text{C}$

Temperature on Tuesday  $=$  Temperature on Monday  $- 2^{\circ}\text{C}$   
 $= -5^{\circ}\text{C} - 2^{\circ}\text{C} = -7^{\circ}\text{C}$

Temperature on Wednesday  $=$  Temperature on Tuesday  $+ 4^{\circ}\text{C}$   
 $= -7^{\circ}\text{C} + 4^{\circ}\text{C} = -3^{\circ}\text{C}$

Therefore, the temperature on Tuesday and Wednesday was  $-7^{\circ}\text{C}$  and  $-3^{\circ}\text{C}$  respectively.

Q7: 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?

Solution: Height of plane = 5000 m

Depth of submarine = -1200 m

Distance between plane and submarine =  $5000 \text{ m} - (-1200) \text{ m}$   
 $= 5000 \text{ m} + 1200 \text{ m} = 6200 \text{ m}$

Q8: Mohan deposits Rs 2,000 in his bank account and withdraws Rs 1,642 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.

Solution : Since the amount withdrawn is represented by a negative integer, the amount deposited will be represented by a positive integer.

Amount deposited = Rs 2000

Amount withdrawn = -Rs 1642

Balance in Mohan's account = Money deposited + Money withdrawn  
 $= 2000 + (-1642) = 2000 - 1642 = 358$

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

Q9: In a quiz, team A scored - 40, 10, 0 and team B scored 10, 0 - 40 in three successive rounds. Which team scored more? Can we say that we can add integers in any order?

Solution: Team A scored - 40, 10, 0.

Total score =  $-40 + 10 + 0 = -30$

Team B scored 10, 0, -40.

Total score =  $10 + 0 + (-40) = -30$

The scores of both teams are equal.

Q10: In a building, there are 9 floors above ground and 4 floors below the ground. An elevator starts ascending from the second floor below the ground. If the elevator reaches each floor in 3 minutes, where would it be 15 minutes after the start? (Assume that elevator stops at each floor)

Solution: Number of floors above the ground level = 9

Number of floors below the ground level = 4

The floor from which the elevator starts ascending = -2 floor

Rate of ascending = 3 minutes per floor

Number of floors covered in 15 minutes =  $15 / 3 = 5$  floors

Now, starting from -2 floors, 5 floors covered would be

$(-2) + 5 = 3$  floors from the ground level.

Thus, elevator will be above 3 floors from the ground after 15 minutes of the start.

### **Try These**

Q1: Find the absolute values of the following integers:

(a) - 35      (b) +140      (c) - 304      (d)  $-(-45)$

Q2: What is the arrangement of integers -3, -10, 4, 0, 4, 5 in ascending order ?

Q3: What is the arrangement of integers -30, -25, -15, 2, -4, 5 in descending order ?

Q4: Write all integers between -18 and + 10.

Q5: The sum of two integers is - 104. If one of them is 19, find the other.

Q6: A submarine was at 932m below the sea level. If it ascends 579m, what is its new position?

Q7: Sohan completes a game with 1500 points in first round, then he loses 1200 points in second round and completes the third round by scoring 200 points. What is his final score?

Q8: A certain freezing temperature process requires that room temperature to be lowered from  $60^{\circ}\text{C}$  at the rate of  $8^{\circ}\text{C}$  every hour. What will be the room temperature 8 hours after the process begins?

Q9: Simplify:  $1500 - 1200 + 1030 + (-1080)$

Q10: Rahul throws a ball in air. The ball goes up to the height of 21 m and settles at the bottom of a pond, 12 m deep. Find the total distance covered by the ball.

Q11: A fish is 125 m below the sea level. It rises 56 m, then dives 48 m and then rises 25 m again. Find the fish's position from the sea level.

Q12: Subtract - 194 from - 15.

Q13: Write a negative integer and a positive integer whose sum is - 10.

Q14: Neeta has a loan of Rs 1200 to repay. Her father gave Rs 2500. Describe Neeta's financial position.

Q15: A plane is flying at the height of 6000 m above the sea level. At a particular point, it is exactly above a submarine floating 1000 m below the sea level. What is the vertical distance between them?

