

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

**CLASS: VII**

**SUBJECT: MATHS**

**TOPIC: INTEGERS**

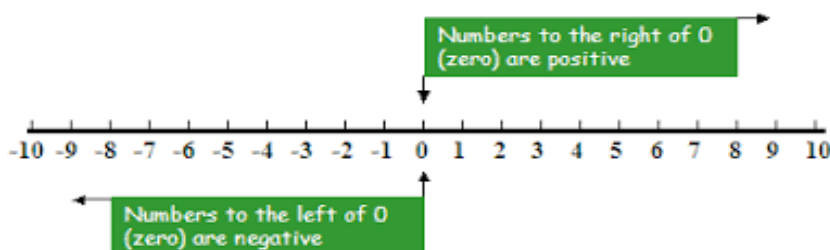
**Introduction:**

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.

Positive Integers	Negative Integers
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?

