

Chapter: Integers & Number System

Homework 1: Basic Number Classification

Nalanda Academy, Wardha

Important Concepts

1. Natural Numbers: 1, 2, 3, 4, ... (counting numbers)
 2. Whole Numbers: 0, 1, 2, 3, ... (natural numbers including zero)
 3. Integers: ..., -3, -2, -1, 0, 1, 2, 3, ...
 4. Even Numbers: divisible by 2 (0, 2, 4, 6, ... and -2, -4, ...)
 5. Odd Numbers: not divisible by 2 (1, 3, 5, ... and -1, -3, ...)
 6. Positive integers > 0 , Negative integers < 0 , Zero is neither positive nor negative
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1. Which of these are natural numbers? 0, 1, 7, -5, 24
2. Which of these are whole numbers? -8, 0, 3, 15, -1
3. Identify the integers from: 4.5, -9, 0, $\frac{1}{2}$, 12
4. Is -4 a natural number? Yes/No
5. Is 0 a whole number? Yes/No
6. Is -7 an integer? Yes/No
7. Write all whole numbers between 1 and 10.
8. Write all natural numbers less than 8.
9. Is 0 an even number? Yes/No
10. Is -6 an even number? Yes/No
11. Is 9 an odd number? Yes/No
12. Is -11 an odd number? Yes/No
13. Write the next three even numbers after -8.
14. Write the next three odd numbers after 5.
15. Write the previous three even numbers before 10.
16. Write the previous three odd numbers before -3.
17. Which is greater: -5 or -2?
18. Which is smaller: 4 or -1?
19. Is zero positive or negative?
20. Is -10 positive, negative or neither?
21. How many natural numbers are there between -5 and 5?
22. How many integers are there between -3 and 4 (including both)?
23. Is every natural number a whole number? Yes/No
24. Is every whole number a natural number? Yes/No
25. Is every integer a whole number? Yes/No
26. Is every even number divisible by 2? Yes/No
27. Is -0 equal to 0? Yes/No
28. Give an example of a negative even number.
29. Give an example of a positive odd number.
30. Give an example of a negative odd number.

31. Is 1 an odd number? Yes/No
32. Is -2 an even number? Yes/No
33. Write all even numbers between -6 and 6 .
34. Write all odd numbers between -5 and 5 .
35. How many even numbers are there from 0 to 10 (including both)?
36. How many odd numbers are there from 1 to 15 (including both)?
37. Is -100 an even number? Yes/No
38. Is 75 an odd number? Yes/No
39. Is 0 considered positive? Yes/No
40. Is 0 considered negative? Yes/No
41. Which is the smallest whole number?
42. Which is the greatest natural number? (There is none — explain)
43. Which is the smallest integer? (There is none — explain)
44. Arrange in ascending order: $-7, 3, -1, 0, 5, -4$
45. Arrange in descending order: $8, -2, 6, 0, -5, 9$
46. Identify even numbers: $-12, 7, 0, -5, 18, 21$
47. Identify odd numbers: $15, -8, 3, -11, 0, 22$
48. Is -999 an odd number? Yes/No
49. Is 500 an even number? Yes/No
50. Write the opposite of $+7$.
51. Write the opposite of -4 .
52. Write the opposite of 0.
53. What is the absolute value of $| -9 |$?
54. What is the absolute value of $| 5 |$?
55. What is the absolute value of $| 0 |$?
56. Which is farther from zero on number line: -8 or $+6$?
57. Which is closer to zero: -3 or $+2$?
58. Is $-(-5)$ positive or negative?
59. Is $-(-8)$ equal to $+8$? Yes/No
60. Write all integers from -5 to $+5$.
61. How many integers are there from -10 to $+10$ (including both)?
62. Is 0 an integer? Yes/No
63. Is 0 a natural number? Yes/No
64. Is 0 a whole number? Yes/No
65. Is 0 even or odd?
66. Is -1 a natural number? Yes/No
67. Is 1 a whole number? Yes/No
68. Is -15 an even number? Yes/No
69. Is 24 an odd number? Yes/No
70. Write any three positive integers.
71. Write any three negative integers.
72. Write any three even whole numbers.
73. Write any three odd integers.
74. Is every odd number not divisible by 2? Yes/No
75. Is every even number divisible by 2? Yes/No
76. Successor of 8 is _____
77. Predecessor of -3 is _____
78. Successor of 0 is _____
79. Predecessor of 1 is _____
80. The integer just after -7 is _____
81. The integer just before 6 is _____
82. Represent $-5, +3, 0, -8, +4$ on a number line.
83. Mark the integers $-6, -2, 1, 4, -9$ on a number line.
84. Show the position of -4 and $+4$ on a number line. Are they equidistant from zero?
85. Draw a number line and mark: $-10, -7, -3, 0, 2, 5, 8$
86. Which integers lie between -5 and -1 on the number line?
87. Which integers lie between 2 and 7 on the number line?

88. Write all integers greater than -8 but less than -2 .
89. Write all integers less than 5 but greater than -1 .
90. Write all even integers between -10 and 0 .
91. Write all odd integers between -5 and 5 .
92. How many whole numbers are there from 0 to 20 (including both)?
93. How many natural numbers are there less than 15 ?
94. Is -0 different from 0 ? Yes/No
95. Is 0 the only integer that is neither positive nor negative? Yes/No
96. Is -6 greater than -9 ? Yes/No
97. Is 3 less than -1 ? Yes/No
98. Is -2 greater than -2 ? Yes/No (equal)

Section B – Word Problems / Real-life Application (101–200)

101. The temperature on a winter morning in Nagpur was -3°C . Is this an integer? Is it positive or negative?
102. A building has 8 floors above ground and 3 floors below ground. How would you represent the basement floors using integers?
103. Rahul scored 7 marks above passing and Mohan scored 5 marks below passing in a test. Represent their scores using integers.
104. A lift goes up 12 floors and then down 7 floors. What is its final position if it started from ground level (0)?
105. In a football match, Team A scored 4 goals and Team B scored 6 goals. Represent the goal difference for Team A using a negative integer.
106. The temperature dropped by 5°C from 8°C . What is the new temperature?
107. A shopkeeper gained 250 on Monday and lost 180 on Tuesday. Represent his profit and loss using integers.
108. A fish is swimming 8 metres below sea level. Represent its position using a negative integer.
109. An aeroplane is flying at 800 metres above sea level and a submarine is 300 metres below sea level. Represent their positions.
110. Rohan deposited 5000 and withdrew 3500 from his bank account. What is the final balance if he started with zero?
111. The highest temperature recorded was 45°C and the lowest was -4°C in a desert. Find the temperature difference.
112. A student got $+8$ marks for correct answers and -3 marks for wrong answers in a quiz. If he attempted 10 questions correctly and 5 wrongly, find his total score.
113. A company made a profit of $85,000$ in January and a loss of $42,000$ in February. What was the net result for two months?
114. In a game, a player moves $+6$ steps forward and then -4 steps backward. What is his final position if he started from zero?

115. Sea level is taken as 0. A mountain is 8848 m above sea level and Mariana Trench is 10911 m below sea level. Represent both using integers.
116. A person climbs up 15 stairs and then comes down 9 stairs. Where is he now if he started from ground level?
117. In a lift, floor numbers are: basement -2 , -1 , ground 0, then 1, 2, etc. A person goes from floor -1 to floor 3. How many floors did he travel up?
118. The temperature was 12°C at noon and fell by 17°C by midnight. What was the temperature at midnight?
119. A student has 150 in his wallet. He spends 185 on books. How much is he short (use negative integer)?
120. A car travels 45 km east and then 32 km west. What is its final displacement from the starting point (take east as positive)?
121. In a class test, passing mark is 40. A student scored $40 + 7 = 47$ and another scored $40 - 11 = 29$. Represent their deviation from passing marks.
122. A deep freezer shows -18°C . Is this an even or odd integer?
123. A player has a score of -5 in a game. He scores $+10$ in the next round. What is his new score?
124. A bank balance shows -850 . What does this mean? Is it positive or negative?
125. The difference between two integers is 9 and one of them is -4 . Find the other integer.
126. A thermometer shows -8°C in the morning and rises by 15°C by afternoon. What is the afternoon temperature?
127. A diver goes 25 m below sea level and then comes up 18 m. What is his final depth?
128. A company's share price went up by 12 and then down by 17. What is the net change?
129. In a lift, a person presses button -2 from floor $+3$. How many floors does the lift descend?
130. A student has 7 green marbles and 5 red marbles. If green is positive and red is negative, what is his net marble count?
131. The record highest temperature in Wardha is 46°C and lowest is 4°C . Find the range.
132. A football team won 8 matches and lost 5 matches. Represent their net performance using integers.
133. A plane is flying at $+9000$ m and descends 4500 m for landing. What is its new altitude?
134. A person owes 1200 to a friend (negative) and later pays back 1500. What is the final status?
135. Temperature at 6 AM was -2°C and at 12 noon it became 14°C . By how many degrees did it rise?
136. A submarine is at -350 m and rises 120 m. What is its new depth?
137. In a quiz, each correct answer gives $+4$ marks and wrong answer gives -2 marks. A student answered 15 correctly and 5 wrongly. Find his total score.
138. A building has 12 floors above ground and 4 basement floors. Represent the top floor and the lowest basement using integers.

139. A shopkeeper sells an item for 850 that he bought for 920. What is his profit or loss?
140. A train goes 120 km towards east (+120) and returns 80 km west. What is its displacement from starting station?
141. The temperature falls from 10°C to -5°C . By how many degrees did it fall?
142. A player starts at position 0. He moves +8, then -5, then +3. What is his final position?
143. A bank account has -450. The owner deposits 1000. What is the new balance?
144. In a test, full marks are 100. A student scores 78. Represent his shortfall using negative integer.
145. A mountain is 4800 m high (+4800 m) and a valley is 150 m below sea level. Find the height difference.
146. A person walks 15 km north and 10 km south. What is his final position from starting point?
147. The difference between a temperature of -7°C and 9°C is how many degrees?
148. A student has 500 and spends 680. How much does he need to borrow?
149. A lift starts at floor -3 and goes to floor +5. How many floors did it travel upwards?
150. In a game, a player gains 12 points and loses 8 points. What is his net score?
151. A thermometer reads -10°C . After some time it shows -4°C . Did the temperature rise or fall? By how much?
152. A company had a loss of 75,000 last year and a profit of 1,20,000 this year. What is the net result over two years?
153. A fish swims 12 m downstream and 7 m upstream. What is its final position from starting point?
154. The temperature was 38°C and it dropped by 45°C . What is the final temperature?
155. A student got +10 for attendance and -5 for late coming. What is his net attendance score?
156. A plane descends from 10,000 m to 4000 m. How much did it descend?
157. A bank balance shows -1200. After depositing 5000, what is the new balance?
158. In a match, India scored 350 runs and Australia scored 328. What was India's lead?
159. A person goes 25 km towards east and 30 km towards west. Where is he now with respect to starting point?
160. Temperature at night was -6°C and rose by 11°C in the morning. What is the morning temperature?
161. A shopkeeper buys 50 kg sugar at 42/kg and sells at 48/kg. What is his total profit?
162. A lift goes from floor -4 to floor +8. How many floors did it travel?
163. A student has 9 chocolates and eats 14. How many does he need to borrow (use negative)?
164. The highest point in Maharashtra is Kalsubai at +1646 m and the lowest coastline is 0 m. What is the height difference?

165. A player moves $+7$, -9 , $+4$, -2 steps. What is his final position?
166. A bank account shows -980 . Owner deposits 1500 and withdraws 300 . Final balance?
167. Temperature falls from 15°C to -8°C . Total fall in temperature?
168. A building has 15 floors above and 5 below ground. Represent the topmost and bottommost floors.
169. A company shows a loss of $45,000$ (negative). Next year profit $82,000$. Net result?
170. A diver goes 40 m down and comes up 25 m. Final depth?
171. In a quiz, $+5$ for correct, -2 for wrong. Student does 20 correct, 10 wrong. Total score?
172. A train travels 450 km forward and 120 km backward. Final displacement?
173. Temperature was 42°C and dropped by 50°C . Final temperature?
174. A student has 800 pocket money and spends 1250 in a month. How much overdraft (negative)?
175. A plane flies at $+12,000$ m and descends 8500 m. New altitude?
176. A football team has $+12$ goal difference (goals scored minus conceded). They scored 45 goals. How many did they concede?