

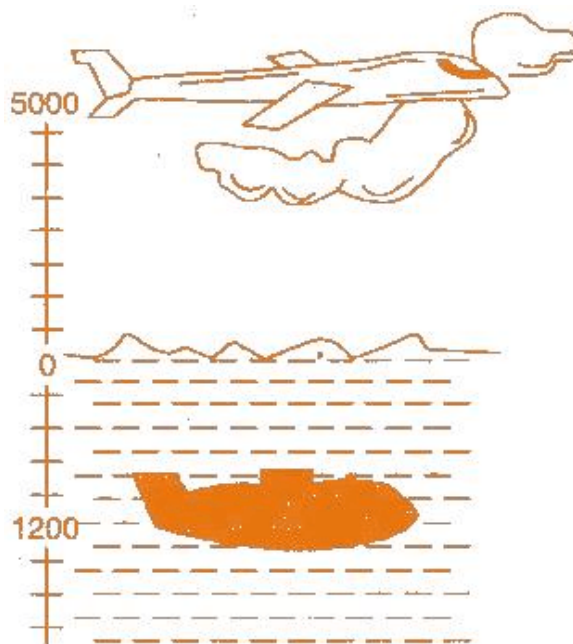
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NCERT Class 7 Solutions: Integers (Chapter 1) Exercise 1.1 – Part 2

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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?



Solution:

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

- \therefore The vertical distance between the plane and the submarine $= 5000 + 1200 = 6200m$
- Thus, the vertical distance between the plane and the submarine is 6200 m.

Q-5 Mohan deposits ₹ 2,000 in his bank account and withdraws ₹ 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 accounts after the withdrawal?

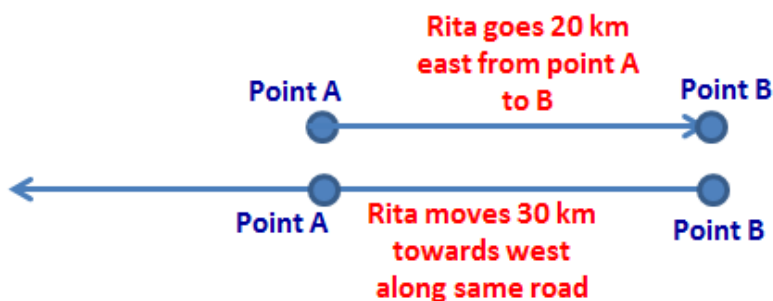
Solution:

- Deposit amount $= ₹. 2,000$
- Withdrawal amount is represented as negative integer $= - ₹. 1,642$
- \therefore Balance $= 2,000 - 1,642 = ₹. 358$
- Thus, the balance in Mohan's account after withdrawal is ₹ 358.

Q-6 Rita goes 20 km towards east from a point A to the point B. From B, she moves 30 km towards west along the same road. If the distance towards east is represented by a positive integer then, how will you represent the distance travelled towards west? By which integer will you represent her final position from A?

Solution:

Let Rita move on a number line with point A as zero.



- According to the number line, Rita moves towards east is represented by a positive integer. In this case point B would be 20 (20 km) .

- Later she moves in opposite direction means Rita moves west, this will be represented by negative integer -30 (30 km) .

Distance from A to B = 20 km

Distance from B to C = -30 km

Distance from A to C = $20 - 30 = -10\text{ km}$

Thus, Rita is at final position from A to C is -10 km .

Q-7 In a magic square each row, column and diagonal have the same sum. Check which of the following is a magic square.

5	-1	-4
-5	-2	7
0	3	-3

(i)

1	-10	0
-4	-3	-2
-6	4	-7

(ii)

Solution:

Understand that the sum of a positive number and a negative number results in subtraction operation.

1. 1st magical square

- Taking Rows

- Taking 1st row = $5 + (-1) + (-4) = 5 - 1 - 4 = 5 - 5 = 0$
- Taking 2nd row = $(-5) + (-2) + 7 = -5 - 2 + 7 = -7 + 7 = 0$
- Taking 3rd row = $0 + 3 + (-3) = 3 - 3 = 0$

- Taking Columns

- Taking 1st column = $5 + (-5) + 0 = 5 - 5 = 0$

- Taking 2nd column $= (-1) + (-2) + 3 = -1 - 2 + 3 = -3 + 3 = 0$
- Taking 3rd column $= (-4) + 7 + (-3) = -4 + 7 - 3 = -7 + 7 = 0$
- Taking diagonals
 - Taking 1st diagonal $= 5 + (-2) + (-3) = 5 - 2 - 3 = 5 - 5 = 0$
 - Taking 2nd diagonal $= (-4) + (-2) + 0 = -4 - 2 = -6$

This box is not a magic square because all the sums are not equal.

1. 2nd magical square

2. Taking Rows

- Taking 1st row $= 1 + (-10) + 0 = 1 - 10 = -9$
- Taking 2nd row $= (-4) + (-3) + (-2) = -4 - 3 - 2 = -9$
- Taking 3rd row $= (-6) + 4 + (-7) = -6 + 4 - 7 = -13 + 4 = -9$

3. Taking Columns

- Taking 1st column $= 1 + (-4) + (-6) = 1 - 4 - 6 = 1 - 10 = -9$
- Taking 2nd column $= (-10) + (-3) + 4 = -10 - 3 + 4 = -13 + 4 = -9$
- Taking 3rd column $= 0 + (-2) + (-7) = -2 - 7 = -9$

- Taking diagonals
 - Taking 1st diagonal $= 1 + (-3) + (-7) = 1 - 3 - 7 = 1 - 10 = -9$
 - Taking 2nd diagonal $= 0 + (-3) + (-6) = -3 - 6 = -9$

This box is a magic square because all the sums are equal.