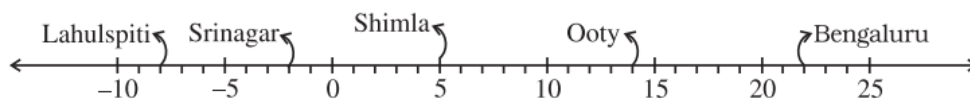




CLASS NOTES-ANSWERS

EXERCISE 1.1

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



- Observe this number line and write the temperature of the places marked on it.
- What is the temperature difference between the hottest and the coldest places among the above?
- What is the temperature difference between Lahulspiti and Srinagar?
- 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?

Answer:

Place	Temperature
Lahulspiti	-8°C
Srinagar	-2°C
Shimla	5°C
Ooty	14°C
Bengaluru	22°C



b) Hottest place is Bengaluru at 22°C .

Coldest place is Lahulspiti at -8°C .

$$\begin{aligned} \text{The difference between the temperature of the two cities} &= 22^{\circ}\text{C} - (-8^{\circ}\text{C}) \\ &= 22^{\circ}\text{C} + 8^{\circ}\text{C} \\ &= 30^{\circ}\text{C} \end{aligned}$$

c) Temperature of Srinagar: -2°C

Temperature of Lahulspiti: -8°C

\therefore The temperature difference between the cities

$$\begin{aligned} &= -2^{\circ}\text{C} - (-8^{\circ}\text{C}) \\ &= -2^{\circ}\text{C} + 8^{\circ}\text{C} \\ &= 8^{\circ}\text{C} - 2^{\circ}\text{C} \\ &= 6^{\circ}\text{C} \end{aligned}$$

d) Temperature of Srinagar: -2°C

Temperature of Shimla: 5°C

Temperature of Srinagar & Shimla together = $-2^{\circ}\text{C} + 5^{\circ}\text{C} = 3^{\circ}\text{C}$

We have,

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

i.e., Temperature of Srinagar & Shimla together < Temperature at Shimla

❖ $-2^{\circ}\text{C} < 3^{\circ}\text{C}$

i.e., Temperature of Srinagar < Temperature of Srinagar & Shimla together

2. 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?

Answer:

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

Total marks obtained by jack

$$\begin{aligned} &= 25 + (-5) + (-10) + 10 + 15 \\ &= 25 - 15 + 25 \\ &= 35 \end{aligned}$$

Thus, Jack obtained 35 marks in the quiz.

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?

Answer:

Temperature of Srinagar on Monday = -5°C

On Tuesday, it was dropped by 2°C .

\therefore Temperature on Tuesday

$$\begin{aligned} &= -5^{\circ}\text{C} - 2^{\circ}\text{C} \\ &= -7^{\circ}\text{C} \end{aligned}$$

Thus, temperature on Tuesday was -7°C .

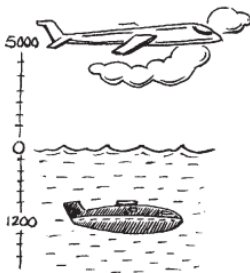
On Wednesday, it rose up by 4°C

\therefore Temperature on Wednesday

$$\begin{aligned} &= -7^{\circ}\text{C} + 4^{\circ}\text{C} \\ &= -3^{\circ}\text{C} \end{aligned}$$

Thus, temperature on Wednesday was -3°C .

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?



Answer:

Height of the plane above the sea level = 5000 m

Depth of submarine below the sea level = -1200 m

Distance between plane and submarine = 5000 m $- (-1200$ m)

$$= 5000 + 1200$$

$$= 6200$$
 m

Hence, the vertical distance between them = 6200 m.

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 account after the withdrawal.

Answer:

Amount deposited by Mohan = ₹2000



Amount withdrawn by Mohan = - ₹1642

Balance in Mohan's account

= amount deposited + amount withdrawn

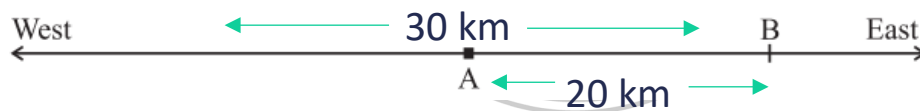
= 2000 + (-1642)

= ₹ 358

Hence, the balance in Mohan's account after withdrawal is ₹ 358

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?

Answer:



Distance travelled by Rita towards east

(represented by positive integer) = 20 km

Distance travelled by Rita towards west

(represented by negative integer) = -30 km

Final position of Rita from A = $[20 + (-30)]$ km

= 20 - 30

= -10 km

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)

Answer:

(i) Taking rows,

$$\begin{aligned} R1 &= 5 + (-1) + (-4) \\ &= 5 + (-5) \\ &= 0 \end{aligned}$$

$$\begin{aligned} R2 &= (-5) + (-2) + 7 \\ &= (-7) + 7 \\ &= 0 \end{aligned}$$

$$\begin{aligned} R3 &= 0 + 3 + (-3) \\ &= 0 \end{aligned}$$

Taking columns,

$$\begin{aligned} C1 &= 5 + (-5) + 0 \\ &= 0 \end{aligned}$$

$$\begin{aligned} C2 &= (-1) + (-2) + 3 \\ &= (-3) + 3 \\ &= 0 \end{aligned}$$

$$\begin{aligned} C3 &= (-4) + 7 + (-3) \\ &= 3 + (-3) \\ &= 0 \end{aligned}$$

Taking diagonals,





$$\begin{aligned}d1 &= 5 + (-2) + (-3) \\ &= 5 + (-5) \\ &= 0\end{aligned}$$

$$\begin{aligned}d2 &= (-4) + (-2) + 0 \\ &= -6\end{aligned}$$

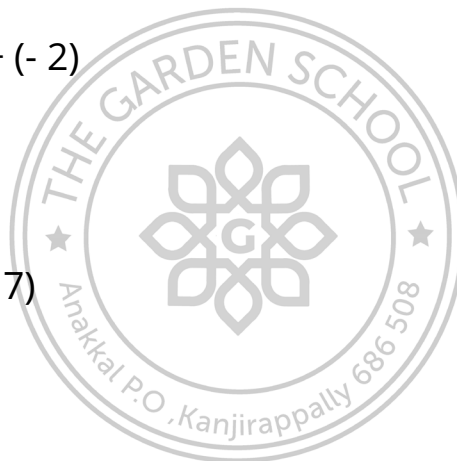
So (i) is not a magic square.

(ii) Taking rows,

$$\begin{aligned}R1 &= 1 + (-10) + 0 \\ &= -9\end{aligned}$$

$$\begin{aligned}R2 &= (-4) + (-3) + (-2) \\ &= (-7) + (-2) \\ &= -9\end{aligned}$$

$$\begin{aligned}R3 &= (-6) + 4 + (-7) \\ &= (-2) + (-7) \\ &= -9\end{aligned}$$



Taking columns,

$$\begin{aligned}C1 &= 1 + (-4) + (-6) \\ &= 1 + (-10) \\ &= -9\end{aligned}$$

$$\begin{aligned}C2 &= (-10) + (-3) + 4 \\ &= (-10) + 1 \\ &= -9\end{aligned}$$

$$\begin{aligned}C3 &= 0 + (-2) + (-7) \\ &= -9\end{aligned}$$



Taking diagonals,

$$\begin{aligned}d_1 &= 1 + (-3) + (-7) \\ &= 1 + (-10) \\ &= -9\end{aligned}$$

$$\begin{aligned}d_2 &= 0 + (-3) + (-6) \\ &= -9\end{aligned}$$

So (ii) is a magic square. Since each row, column and diagonal of the square have the same sum.

8. Verify $a - (-b) = a + b$ for the following values of a and b .

(i) $a = 21, b = 18$

(ii) $a = 118, b = 125$

(iii) $a = 75, b = 84$

(iv) $a = 28, b = 11$

Answer:

(i) L.H.S. $= a - (-b)$
 $= 21 - (-18)$
 $= 21 + 18$
 $= 39$

R.H.S. $= a + b$
 $= 21 + 18$
 $= 39$

i.e., L.H.S. = R.H.S.

$\therefore a - (-b) = a + b = 39$





$$\begin{aligned} \text{(ii) L.H.S.} &= a - (-b) \\ &= 118 - (-125) \\ &= 118 + 125 \\ &= 243 \end{aligned}$$

$$\begin{aligned} \text{R.H.S.} &= a + b \\ &= 118 + 125 \\ &= 243 \end{aligned}$$

i.e., L.H.S = R.H.S.

$$\therefore a - (-b) = a + b = 243$$

$$\begin{aligned} \text{(iii) L.H.S.} &= a - (-b) \\ &= 75 - (-84) \\ &= 75 + 84 \\ &= 159 \end{aligned}$$

$$\begin{aligned} \text{R.H.S.} &= a + b \\ &= 75 + 84 \\ &= 159 \end{aligned}$$

i.e., L.H.S. = R.H.S.

$$\therefore a - (-b) = a + b = 159$$

$$\begin{aligned} \text{(iv) L.H.S.} &= a - (-b) \\ &= 28 - (-11) \\ &= 28 + 11 \\ &= 39 \end{aligned}$$

$$\begin{aligned} \text{R.H.S.} &= a + b \\ &= 28 + 11 \end{aligned}$$





$$= 39$$

i.e., L.H.S = R.H.S

$$\therefore a - (-b) = a + b = 39$$

9. Use the sign of $>$, $<$ or $=$ in the box to make the statements true.

(a) $(-8) + (-4)$ $(-8) - (-4)$

(b) $(-3) + 7 - (19)$ $15 - 8 + (-9)$

(c) $23 - 41 + 11$ $23 - 41 - 11$

(d) $39 + (-24) - (15)$ $36 + (-52) - (-36)$

(e) $-231 + 79 + 51$ $-399 + 159 + 81$

Answer:

(a) $(-8) + (-4)$ $(-8) + 4$
 -12 -4

(b) $(-3) + 7 - 19$ $15 - 8 + (-9)$
 $4 - 19$ $7 - 9$
 -15 -2

(c) $23 - 41 + 11$ $23 - 41 - 11$
 $-18 + 11$ $-18 - 11$
 -7 -29

(d) $39 + (-24) - (15)$ $36 + (-52) - (-36)$
 $39 - 24 - 15$ $36 - 52 + 36$



$$15 - 15 \quad -16 + 36$$

$$0 \quad < \quad 20$$

(e) $-231 + 79 + 51 \quad \square \quad -399 + 159 + 81$

$(-152) + 51 \quad \square \quad (-240) + 81$

$-101 \quad \square \quad -159$

10. A water tank has steps inside it. A monkey is sitting on the topmost step (i.e., the first step). The water level is at the ninth step.

(i) He jumps 3 steps down and then jumps back 2 steps up. In how many jumps will he reach the water level?

(ii) After drinking water, he wants to go back. For this, he jumps 4 steps up and then jumps back 2 steps down in every move. In how many jumps will he reach back the top step?

(iii) If the number of steps moved down is represented by negative integers and the number of steps moved up by positive integers, represent his moves in part (i) and (ii) by completing the following; (a) $-3 + 2 - \dots = -8$ (b) $4 - 2 + \dots = 8$. In (a) the sum (-8) represents going down by eight steps. So, what will the sum 8 in (b) represent?





Answer:

(Let the steps moved down be represented by positive integers and the steps moved up be represented by negative integers.)

(i) Initially, the monkey was at step 1

$$\text{First jump} = 1 + 3 = 4^{\text{th}} \text{ step}$$

$$\text{Second jump} = 4 - 2 = 2^{\text{nd}} \text{ step}$$

$$\text{Third jump} = 2 + 3 = 5^{\text{th}} \text{ step}$$

$$\text{Fourth jump} = 5 - 2 = 3^{\text{rd}} \text{ step}$$

$$\text{Fifth jump} = 3 + 3 = 6^{\text{th}} \text{ step}$$

$$\text{Sixth jump} = 6 - 2 = 4^{\text{th}} \text{ step}$$

$$\text{Seventh jump} = 4 + 3 = 7^{\text{th}} \text{ step}$$

$$\text{Eighth jump} = 7 - 2 = 5^{\text{th}} \text{ step}$$

$$\text{Ninth jump} = 5 + 3 = 8^{\text{th}} \text{ step}$$

$$\text{Tenth jump} = 8 - 2 = 6^{\text{th}} \text{ step}$$

$$\text{Eleventh jump} = 6 + 3 = 9^{\text{th}} \text{ step}$$

Monkey will reach ninth step in 11 jumps.

(ii) Initially, the monkey was at step 9

$$\text{First jump} = 9 - 4 = 5^{\text{th}} \text{ step}$$

$$\text{Second jump} = 5 + 2 = 7^{\text{th}} \text{ step}$$

$$\text{Third jump} = 7 - 4 = 3^{\text{rd}} \text{ step}$$

$$\text{Fourth jump} = 3 + 2 = 5^{\text{th}} \text{ step}$$

$$\text{Fifth jump} = 5 - 4 = 1^{\text{st}} \text{ step}$$

The monkey will reach back the top step after 5 jumps.

(iii) If steps moved down are represented by negative integers and steps



moved up are represented by positive integers, then his moves will be as follows:

Moves in part (i)

$$-3 + 2 - 3 + 2 - 3 + 2 - 3 + 2 - 3 + 2 - 3 = -8$$

It represents the monkey goes down by 8 steps.

Moves in part (ii)

$$4 - 2 + 4 - 2 + 4 = 8$$

It represents the monkey goes up by 8 steps.

