
Class -VII Mathematics (Ex. 1.1)**Answers**

1. (a) The temperature of the places marked on it is:

Places	Temperature	Places	Temperature
Bangalore	22°C	Srinagar	-2°C
Ooty	14°C	Lahulspiti	-8°C
Shimla	5°C		

- (b) The temperature of the hottest place Bangalore = 22°C

The temperature of the coldest place Lahulspiti = -8°C

$$\text{Difference} = 22^{\circ}\text{C} - (-8^{\circ}\text{C}) = 22^{\circ}\text{C} + 8^{\circ}\text{C} = 30^{\circ}\text{C}$$

- (c) The temperature of Srinagar = -2°C

The temperature of Lahulspiti = -8°C

$$\text{Difference} = -2^{\circ}\text{C} + (-8^{\circ}\text{C}) = -2^{\circ}\text{C} - 8^{\circ}\text{C} = -6^{\circ}\text{C}$$

- (d) The temperature of Srinagar and Shimla = 5°C + (-2°C) = 5°C - 2°C = 3°C

The temperature at Shimla = 5°C

Therefore, $3^{\circ}\text{C} < 5^{\circ}\text{C}$

Thus, temperature of Srinagar and Shimla taken together is less than the temperature at Shimla.

Now, Temperature of Srinagar = -2°C

Therefore, $3^{\circ}\text{C} > -2^{\circ}\text{C}$

No, it is not less than the temperature at Srinagar.

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

$$\text{Total marks got by Jack} = 25 + (-5) + (-10) + 15 + 10$$

$$= 25 - 15 + 25 = 35$$

Thus, 35 marks are got by Jack in a quiz.

3. On Monday, temperature at Srinagar = -5°C

On Tuesday, temperature dropped = 2°C

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

On Wednesday, temperature rose up = 4°C

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

Thus, temperature on Tuesday and Wednesday was -7°C and -3°C respectively.

4. Height of a place above the sea level = 5000 m

Floating a submarine below the sea level = 1200 m

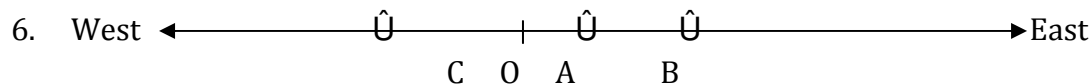
$$\therefore \text{The vertical distance between the plane and the submarine} = 5000 + 1200 = 6200 \text{ m}$$

Thus, the vertical distance between the plane and the submarine is 6200 m.

5. Deposit amount = ₹ 2,000 and Withdrawal amount = ₹ 1,642

$$\therefore \text{Balance} = 2,000 - 1,642 = ₹ 358$$

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



According to the number line, Rita moves towards east is represented by a positive integer. But she moves in opposite direction means Rita moves west, is represented by negative integer.

Distance from A to B = 20 km

Distance from B to C = 30 km

Distance from A to C = $20 - 30 = -10$ km

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

7. (i) Taking rows $5 + (-1) + (-4) = 5 - 5 = 0$
 $(-5) + (-2) + 7 = -7 + 7 = 0$
 $0 + 3 + (-3) = 3 - 3 = 0$
- Taking columns $5 + (-5) + 0 = 5 - 5 = 0$
 $(-1) + (-2) + 3 = -3 + 3 = 0$
 $(-4) + 7 + (-3) = 7 - 7 = 0$
- Taking diagonals $5 + (-2) + (-3) = 5 - 5 = 0$
 $(-4) + (-2) + 0 = -6$

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

- (ii) Taking rows $1 + (-10) + 0 = 1 - 10 = -9$
 $(-4) + (-3) + (-2) = -7 - 2 = -9$
 $(-6) + 4 + (-7) = -2 - 7 = -9$
- Taking columns $1 + (-4) + (-6) = 1 - 10 = -9$
 $(-10) + (-3) + 4 = -13 + 4 = -9$
 $0 + (-2) + (-7) = 0 - 9 = -9$
- Taking diagonals $1 + (-3) + (-7) = 1 - 10 = -9$
 $0 + (-3) + (-6) = -9$

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

8. (i) Given: $a = 21, b = 18$
 We have $a - (-b) = a + b$

Putting the values in L.H.S. = $a - (-b) = 21 - (-18) = 21 + 18 = 39$

Putting the values in R.H.S. = $a + b = 21 + 19 = 39$

Since, L.H.S. = R.H.S

Hence, verified.

- (ii) Given: $a = 118, b = 125$
 We have $a - (-b) = a + b$

Putting the values in L.H.S. = $a - (-b) = 118 - (-125) = 118 + 125 = 243$

Putting the values in R.H.S. = $a + b = 118 + 125 = 243$

Since, L.H.S. = R.H.S

Hence, verified.

- (iii) Given: $a = 75, b = 84$
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We have $a - (-b) = a + b$

Putting the values in L.H.S. = $a - (-b) = 75 - (-84) = 75 + 84 = 159$

Putting the values in R.H.S. = $a + b = 75 + 84 = 159$

Since, L.H.S. = R.H.S

Hence, verified.

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

We have $a - (-b) = a + b$

Putting the values in L.H.S. = $a - (-b) = 28 - (-11) = 28 + 11 = 39$

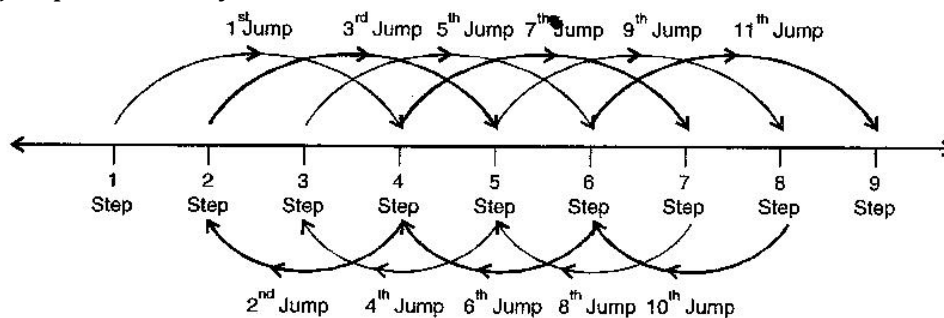
Putting the values in R.H.S. = $a + b = 28 + 11 = 39$

Since, L.H.S. = R.H.S

Hence, verified.

9. (a) $(-8) + (-4) \square (-8) - (-4) \Rightarrow -8 - 4 \square -8 + 4$
 $\Rightarrow -12 \square -4 \Rightarrow -12 \square < -4$
- (b) $(-3) + 7 - (19) \square 15 - 8 + (-9) \Rightarrow -3 + 7 - 19 \square 15 - 8 - 9$
 $\Rightarrow 4 - 19 \square 15 - 17 \Rightarrow -15 \square -2$
 $\Rightarrow -15 \square < -2$
- (c) $23 - 41 + 11 \square 23 - 41 - 11 \Rightarrow -18 + 11 \square 23 - 52$
 $\Rightarrow -7 \square -29 \Rightarrow -7 \square > -29$
- (d) $39 + (-24) - (15) \square 36 + (-52) - (-36) \Rightarrow 39 - 24 - 15 \square 36 - 52 + 36$
 $\Rightarrow 39 - 39 \square 72 - 52 \Rightarrow 0 \square 20$
 $\Rightarrow 0 \square < 20$
- (e) $(-231) + 79 + 51 \square (-399) + 159 + 81 \Rightarrow -231 + 130 \square -399 + 240$
 $\Rightarrow -101 \square -159 \Rightarrow -101 \square > -159$

10. (i) He jumps 3 steps down and jumps back 2 steps up. Following number ray shows the jumps of monkey:



First jump = $1 + 3 = 4$ steps

Second jump = $4 - 2 = 2$ steps

Third jump = $2 + 3 = 5$ steps

Fourth jump = $5 - 2 = 3$ steps

Fifth jump = $3 + 3 = 6$ steps

Sixth jump = $6 - 2 = 4$ steps

Seventh jump = $4 + 3 = 7$ steps

Eighth jump = $7 - 2 = 5$ steps

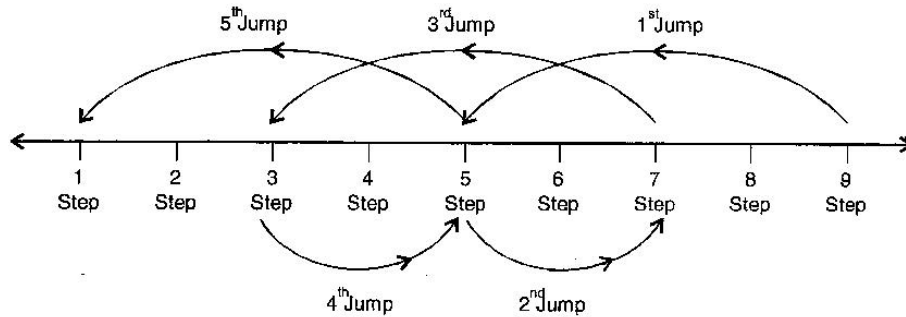
Ninth jump = $5 + 3 = 8$ steps

Tenth jump = $8 - 2 = 6$ steps

Eleventh jump = $6 + 3 = 9$ steps

He will reach ninth steps in 11 jumps.

- (ii) He jumps four steps and then jumps down 2 steps. Following number ray shows the jumps of monkey:



Thus monkey reach back on the first step in fifth jump.

- (iii) (a) $-3 + 2 - 3 + 2 - 3 + 2 - 3 + 2 - 3 + 2 - 3 + 2 - 3 + 2 = -8$
(b) $4 - 2 + 4 - 2 + 4 - 2 + 4 - 2 = 8$

Thus, sum 8 in (b) represents going up by eight steps.

Class -VII Mathematics (Ex. 1.2)**Answers**

1. (a) One such pair whose sum is -7 : $-5 + (-2) = -7$
(b) One such pair whose difference is -10 : $-2 - 8 = -10$
(c) One such pair whose sum is 0 : $-5 + 5 = 0$
2. (a) $-2 - (-10) - 2 + 10 = 8$
(b) $(-7) + 2 = -5$
(c) $(-2) - 1 = -2 - 1 = -3$
3. Team A scored $-40, 10, 0$
Total score of Team A = $-40 + 10 + 0 = -30$
Team B scored $10, 0, -40$
Total score of Team B = $10 + 0 + (-40) = 10 + 0 - 40 = -30$
Thus, scores of both teams are same.
Yes, we can add integers in any order due to commutative property.
4. (i) $(-5) + (-8) = (-8) + \underline{(-5)}$ [Commutative property]
(ii) $-53 + \underline{0} = -53$ [Zero additive property]
(iii) $17 + \underline{(-17)} = 0$ (Additive identity)
(iv) $[13 + (12)] + \underline{(-7)} = 13 + [(-12) + (-7)]$ [Associative property]
(v) $(-4) + [15 + (-3)] = [-4 + 15] + \underline{(-3)}$ [Associative property]
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Class -VII Mathematics (Ex. 1.3)**Answers**

1. (a) $3 \times (-1) = -3$ (b) $(-1) \times 225 = -225$
(c) $(-21) \times (-30) = 630$ (d) $(-316) \times (-1) = 316$
(e) $(-15) \times 0 \times (-18) = 0$ (f) $(-12) \times (-11) \times (10) = 132 \times 10 = 1320$
(g) $9 \times (-3) \times (-6) = 9 \times 18 = 162$ (h) $(-18) \times (-5) \times (-4) = 90 \times (-4) = -360$
(i) $(-1) \times (-2) \times (-3) \times 4 = (-6 \times 4) = -24$ (j) $(-3) \times (-6) \times (2) \times (-1) = (-18) \times (-2) = 36$

2. (a) $18 \times [7 + (-3)] = [18 \times 7] + [18 \times (-3)]$

$$\Rightarrow 18 \times 4 = 126 + (-54)$$

$$\Rightarrow 72 = 72$$

$$\Rightarrow \text{L.H.S.} = \text{R.H.S.}$$

Hence verified.

(b) $(-21) \times [(-4) + (-6)] = [(-21) \times (-4)] + [(-21) \times (-6)]$

$$\Rightarrow (-21) \times (-10) = 84 + 126$$

$$\Rightarrow 210 = 210$$

$$\Rightarrow \text{L.H.S.} = \text{R.H.S.}$$

Hence verified.

3. (i) $(-1) \times a = -a$, where a is an integer.

(ii) (a) $(-1) \times (-22) = 22$

(b) $(-1) \times 37 = -37$

(c) $(-1) \times 0 = 0$

4. $(-1) \times 5 = -5$

$(-1) \times 4 = -4$

$(-1) \times 3 = -3$

$(-1) \times 2 = -2$

$(-1) \times 1 = -1$

$(-1) \times 0 = 0$

$(-1) \times (-1) = 1$

Thus, we can conclude that this pattern shows the product of one negative integer and one positive integer is negative integer whereas the product of two negative integers is a positive integer.

5. (a) $26 \times (-48) + (-48) \times (-36)$

$$\Rightarrow (-48) \times [26 + (-36)]$$

[Distributive property]

$$\Rightarrow (-48) \times (-10)$$

$$\Rightarrow 480$$

(b) $8 \times 53 \times (-125)$

$$\Rightarrow 53 \times [8 \times (-125)] \quad [\text{Commutative property}]$$

$$\Rightarrow 53 \times (-1000)$$

$$\Rightarrow -53000$$

$$(c) 15 \times (-25) \times (-4) \times (-10)$$

$$\Rightarrow 15 \times [(-25) \times (-4) \times (-10)] \quad [\text{Commutative property}]$$

$$\Rightarrow 15 \times (-1000)$$

$$\Rightarrow -15000$$

$$(d) (-41) \times (102)$$

$$\Rightarrow -41 \times [100 + 2] \quad [\text{Distributive property}]$$

$$\Rightarrow [(-41) \times 100] + [(-41) \times 2] \quad \Rightarrow -4100 + (-82)$$

$$\Rightarrow -4182$$

$$(e) 625 \times (-35) + (-625) \times 65$$

$$\Rightarrow 625 \times [(-35) + (-65)] \quad [\text{Distributive property}]$$

$$\Rightarrow 625 \times (-100)$$

$$\Rightarrow -62500$$

$$(f) 7 \times (50 - 2)$$

$$\Rightarrow 7 \times 50 - 7 \times 2 \quad [\text{Distributive property}]$$

$$\Rightarrow 350 - 14 = 336$$

$$(g) (-17) \times (-29) \quad \Rightarrow \quad (-17) \times [(-30) + 1] \quad [\text{Distributive property}]$$

$$\Rightarrow (-17) \times (30) + (-17) \times 1 \quad \Rightarrow 510 + (-17)$$

$$\Rightarrow 493$$

$$(h) (-57) \times (-19) + 57$$

$$\Rightarrow (-57) \times (-19) + 57 \times 1 \quad \Rightarrow 57 \times 19 + 57 \times 1$$

$$\Rightarrow 57 \times (19 + 1) \quad [\text{Distributive property}]$$

$$\Rightarrow 57 \times 20 = 1140$$

6. Given: Present room temperature = 40°C

Decreasing the temperature every hour = 5°C

Room temperature after 10 hours = $40^{\circ}\text{C} + 10 \times (-5^{\circ}\text{C})$

$$= 40^{\circ}\text{C} - 50^{\circ}\text{C}$$

$$= -10^{\circ}\text{C}$$

Thus, the room temperature after 10 hours is -10°C after the process begins.

7. (i) Mohan gets marks for four correct questions = $4 \times 5 = 20$

He gets marks for six incorrect questions = $6 \times (-2) = -12$

Therefore, total scores of Mohan = $(4 \times 5) + [6 \times (-2)]$
 $= 20 - 12 = 8$

Thus, Mohan gets 8 marks in a class test.

(ii) Reshma gets marks for five correct questions = $5 \times 5 = 25$

She gets marks for five incorrect questions = $5 \times (-2) = -10$

Therefore, total score of Reshma = $25 + (-10) = 15$

Thus, Reshma gets 15 marks in a class test.

(iii) Heena gets marks for two correct questions = $2 \times 5 = 10$

She gets marks for five incorrect questions = $5 \times (-2) = -10$

Therefore, total score of Reshma = $10 + (-10) = 0$

Thus, Reshma gets 0 marks in a class test.

8. Given: Profit of 1 bag of white cement = ₹ 8

And Loss of 1 bag of grey cement = ₹ 5

(a) Profit on selling 3000 bags of white cement = $3000 \times 8 = ₹ 24,000$

Loss of selling 5000 bags of grey cement = $5000 \times ₹ 5 = ₹ 25,000$

Since Profit < Loss

Therefore, his total loss on selling the grey cement bags = Loss – Profit
 $= 25,000 - 24,000$
 $= ₹ 1,000$

Thus, he has lost of ₹ 1,000 on selling the grey cement bags.

(b) Let the number of bags of white cement be x .

According to question, Loss = Profit

$\therefore 5 \times 6,400 = x \times 8$

$\Rightarrow x = \frac{5 \times 6400}{8} = 5000$ bags

Thus, he must sell 4000 white cement bags to have neither profit nor loss.

9. (a) $(-3) \times (-9) = 27$

(b) $5 \times (-7) = -35$

(c) $7 \times (-8) = -56$

(d) $(-11) \times (-12) = 132$

Class -VII Mathematics (Ex. 1.4)**Answers**

1. (a) $(-30) \div 10 = (-30) \times \frac{1}{10} = \frac{-30 \times 1}{10} = -3$

(b) $50 \div (-5) = 50 \times \left(\frac{-1}{5}\right) = \frac{50 \times (-1)}{5} = -10$

(c) $(-36) \div (-9) = (-36) \times \left(\frac{-1}{9}\right) = \frac{(-36) \times (-1)}{9} = \frac{36}{9} = 4$

(d) $(-49) \div 49 = (-49) \times \frac{1}{49} = \frac{-49}{49} = -1$

(e) $13 \div [(-2) + 1] = 13 \div (-1) = 13 \times \left(\frac{-1}{1}\right) = -13$

(f) $0 \div (-12) = 0 \times \left(\frac{-1}{12}\right) = \frac{0}{12} = 0$

(g) $(-31) \div [(-30) \div (-1)] = (-31) \div (-30 - 1) = (-31) \div (-31) = (-31) \times \left(\frac{-1}{31}\right) = \frac{31}{31} = 1$

(h) $[(-36) \div 12] \div 3 = \left[(-36) \times \frac{1}{12}\right] \times \frac{1}{3} = \left(\frac{-36}{12}\right) \times \frac{1}{3} = (-3) \times \frac{1}{3} = \frac{-3}{3} = -1$

(i) $[(-6) + 5] \div [(-2) + 1] = (-6 + 5) \div (-2 + 1) = (-1) \div (-1) = (-1) \times \frac{(-1)}{1} = 1$

2. (a) Given: $a \div (b + c) \neq (a \div b) + (a \div c)$

$$a = 12, b = -4, c = 2$$

Putting the given values in L.H.S. = $12 \div (-4 + 2)$

$$= 12 \div (-2) = 12 \div \left(\frac{-1}{2}\right) = \frac{-12}{2} = -6$$

Putting the given values in R.H.S. = $[12 \div (-4)] + (12 \div 2)$

$$= \left(12 \times \frac{-1}{4}\right) + 6 = -3 + 6 = 3$$

Since, L.H.S. \neq R.H.S.

Hence verified.

(b) Given: $a \div (b + c) \neq (a \div b) + (a \div c)$

$$a = -10, b = 1, c = 1$$

Putting the given values in L.H.S. = $-10 \div (1 + 1)$

$$= -10 \div (2) = -5$$

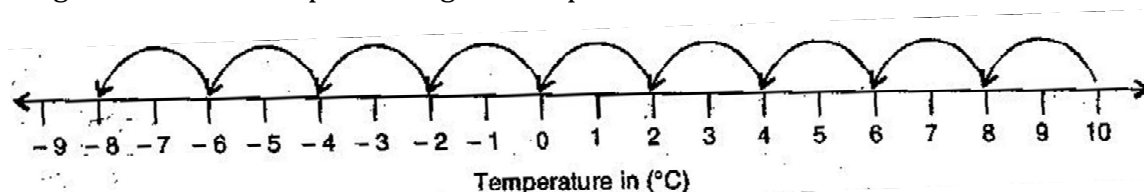
$$\begin{aligned}\text{Putting the given values in R.H.S.} &= [-10 \div 1] + (-10 \div 1) \\ &= -10 - 10 = -20\end{aligned}$$

Since, L.H.S. \neq R.H.S.
Hence verified.

3. (a) $369 \div 1 = 369$ (b) $(-75) \div 75 = (-1)$
 (c) $(-206) \div (-206) = 1$ (d) $(-87) \div (-1) = 87$
 (e) $(-87) \div 1 = -87$ (f) $(-48) \div 48 = -1$
 (g) $20 \div (-10) = -2$ (h) $(-12) \div (4) = -3$

4. (i) $(-6) \div 2 = -3$ (ii) $9 \div (-3) = -3$
 (iii) $12 \div (-4) = -3$ (iv) $(-9) \div 3 = -3$
 (v) $(-15) \div 5 = -3$

5. Following number line is representing the temperature:



The temperature decreases $2^\circ\text{C} = 1$ hour

The temperature decreases $1^\circ\text{C} = \frac{1}{2}$ hour

The temperature decreases $18^\circ\text{C} = \frac{1}{2} \times 18 = 9$ hours

Total time = 12 noon + 9 hours = 21 hours = 9 pm

Thus, at 9 pm the temperature would be 8°C below 0°C .

6. (i) Marks given for one correct answer = 3
 Marks given for 12 correct answers = $3 \times 12 = 36$
 Radhika scored 20 marks.
 Therefore, Marks obtained for incorrect answers = $20 - 36 = -16$
 Now, marks given for one incorrect answer = -2
 Therefore, number of incorrect answers = $(-16) \div (-2) = 8$
 Thus, Radhika has attempted 8 incorrect questions.
 (ii) Marks given for seven correct answers = $3 \times 7 = 21$
 Mohini scores = -5
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Marks obtained for incorrect answers = $-5 - 21 = -26$

Now, marks given for one incorrect answer = -2

Therefore, number of incorrect answers = $(-26) \div (-2) = 13$

Thus, Mohini has attempted 13 incorrect questions.

7. Starting position of mine shaft is 10 m above the ground but it moves in opposite direction so it travels the distance (-350) m below the ground.

So total distance covered by mine shaft = $10 \text{ m} - (-350) \text{ m} = 10 + 350 = 360 \text{ m}$

Now, time taken to cover a distance of 6 m by it = 1 minute

So, time taken to cover a distance of 1 m by it = $\frac{1}{6}$ minute

Therefore, time taken to cover a distance of 360 m = $\frac{1}{6} \times 360 = 60 \text{ minutes} = 1 \text{ hour}$

(Since 60 minutes = 1 hour)

Thus, in one hour the mine shaft reaches -350 below the ground.
