

## *Exercise 1.4*

### **Question 1:**

Evaluate each of the following:

(a)  $(-30) \div 10$

(b)  $50 \div (-5)$

(c)  $(-36) \div (-9)$

(d)  $(-49) \div 49$

(e)  $13 \div [(-2) + 1]$

(f)  $0 \div (-12)$

(g)  $(-31) \div [(-30) \div (-1)]$

(h)  $[(-36) \div 12] \div 3$

(i)  $[(-6) + 5] \div [(-2) + 1]$

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

**(Chapter – 1) (Integers)**  
**(Class – VII)**

**Question 2:**

Verify that  $a \div (b + c) \neq (a \div b) + (a \div c)$  for each of the following values of  $a, b$  and  $c$ .

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

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

**Answer 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. =  $-10 \div (1 + 1)$

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

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

$$= -10 - 10 = -20$$

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

Hence verified.

**Question 3:**

Fill in the blanks:

(a)  $369 \div \underline{\hspace{2cm}} = 369$

(b)  $(-75) \div \underline{\hspace{2cm}} = (-1)$

(c)  $(-206) \div \underline{\hspace{2cm}} = 1$

(d)  $(-87) \div \underline{\hspace{2cm}} = 87$

(e)  $\underline{\hspace{2cm}} \div 1 = -87$

(f)  $\underline{\hspace{2cm}} \div 48 = -1$

(g)  $20 \div \underline{\hspace{2cm}} = -2$

(h)  $\underline{\hspace{2cm}} \div (4) = -3$

**(Chapter – 1) (Integers)**  
**(Class – VII)**

**Answer 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)  $(-12) \div (4) = -3$

**Question 4:**

Write five pairs of integers  $(a, b)$  such that  $a \div b = -3$ . One such pair is  $(6, -2)$  because  $6 \div (-2) = (-3)$ .

**Answer 4:**

(i)  $(-6) \div 2 = -3$

(ii)  $9 \div (-3) = -3$

(iii)  $12 \div (-4) = -3$

(iv)  $(-9) \div 3 = -3$

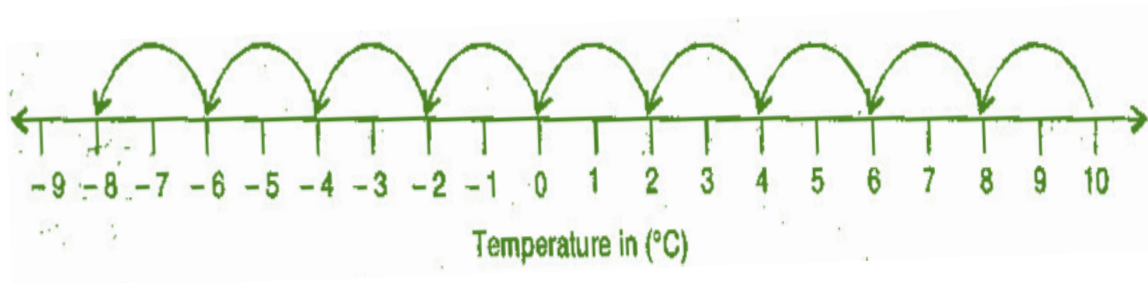
(v)  $(-15) \div 5 = -3$

**Question 5:**

The temperature at noon was  $10^{\circ}\text{C}$  above zero. If it decreases at the rate of  $2^{\circ}\text{C}$  per hour until mid-night, at what time would the temperature be  $8^{\circ}\text{C}$  below zero? What would be the temperature at mid-night?

**Answer 5:**

Following number line is representing the temperature:



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

**(Chapter – 1) (Integers)**  
**(Class – VII)**

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  $8^{\circ}\text{C}$  below  $0^{\circ}\text{C}$ .

**Question 6:**

In a class test (+3) marks are given for every correct answer and (–2) marks are given for every incorrect answer and no marks for not attempting any question.

- (i) Radhika scored 20 marks. If she has got 12 correct answers, how many questions has she attempted incorrectly?
- (ii) Mohini scores (–5) marks in this test, though she has got 7 correct answers. How many questions has she attempted incorrectly?

**Answer 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  
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.

*(Chapter – 1) (Integers)*  
**(Class – VII)**

**Question 7:**

An elevator descends into a mine shaft at the rate of 6 m/min. If the descent starts from 10 above the ground level, how long will it take to reach –350 m?

**Answer 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 m – (–350) m = 10 + 350 = 360 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 minutes = 1 hour

(Since 60 minutes = 1 hour)

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