

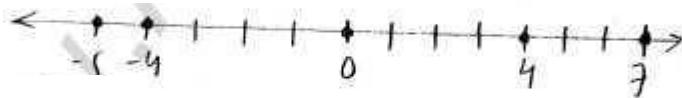
Integers

EXERCISE: 1.1

- 1
- Ascending order is $-18, -9, -4, 0, 3, 8, 12$
 - Descending order is $12, 8, 3, 0, -4, -9, -18$
 - From left, $-17, -14, -11, -7, -5, -3, 1, 4, 7, 9, 11$.

- 2
- B is -6
D is -4
H is 0
J is 2
M is 5
O is 7

3. Ascending order is $-5, -4, 0, 4, 7$



4. Rohit scores in five successive rounds were $15, -3, -7, 12, 8$

$$\begin{aligned}\text{Total score at end} &= \text{Sum of all scores} \\ &= 15 + (-3) + (-7) + 12 + 8 \\ &= 15 - 3 - 7 + 20 = 25\end{aligned}$$

\therefore Rohit Total score at end = 25

5. Ruchi deposited on Monday = ₹ 4370.

She withdrew on Tuesday = ₹ 2875

on Tuesday, the money left = $4370 - 2875$

= ₹ 1495

Next day i.e. on Wednesday

She deposited = ₹ 1550

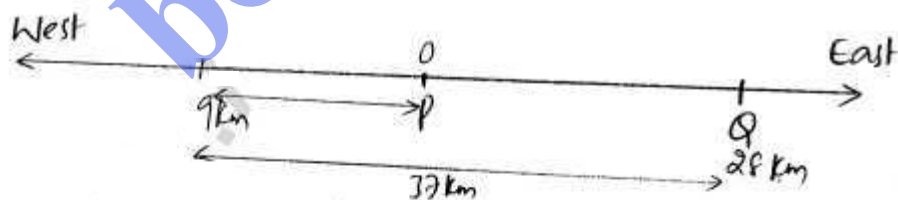
Total Money in Bank = $1550 + 1495$

= ₹ 3045

\therefore Balance on Thursday = Balance on Wednesday

= ₹ 3045

6



Final position from P is $28 - 37$

= -9

7. Let the unfilled boxes be 1st row 2nd box be P

3rd box be Q

2nd row 3rd box be R

3rd row sequentially x, y, z

Given information all the sum of integers in each row, column and each diagonal is -6

$$\begin{aligned} \text{i.e. } -1 + 3 + x &= -6 & ; & \quad -8 + (-2) + Q = -6 \\ 2 + x &= -6 & ; & \quad -8 - 2 + Q = -6 \\ x &= -6 - 2 & ; & \quad -10 + Q = -6 \\ x &= -8 & ; & \quad Q = -6 + 10 = 4 \end{aligned}$$

$$\begin{aligned} -1 + p + 4 &= -6 & ; & \quad 3 + (-2) + R = -6 \\ p + 3 &= -6 & ; & \quad 1 + R = -6 \\ p &= -6 - 3 & ; & \quad R = -6 - 1 \\ p &= -9 & ; & \quad R = -7 \end{aligned}$$

$$\begin{aligned} -9 + (-2) + y &= -6 & ; & \quad -8 + 5 + z = -6 \\ -11 + y &= -6 & ; & \quad -3 + z = -6 \\ y &= -6 + 11 & ; & \quad z = -6 + 3 \\ y &= 5 & ; & \quad z = -3 \end{aligned}$$

-1	p	Q
3	-2	R
x	y	z

\Rightarrow

-1	-9	4
3	-2	-7
-8	5	-3

8

i) $|-13| - |9|$

We know $|-a| = a$

$$= 13 - 9 = 4$$

ii) $|13-5| - |-9|$

$$= |8| - |-9|$$

$$= 8 - 9$$

$$= -1$$

iii) $|35-21| - |8-3|$

$$= |14| - |5|$$

$$= 14 - 5$$

$$= 9$$

9.

Ascending order is $-102, -51, -39, -6, -5, 0, 7, 35$

10. Descending order is $4208, 139, 0, -31, -97, -203$.

11

i) True, it lies left to 0

ii) False, it will have predecessor & successor

iii) True,

iv) True

12

$$i) (-11) + (-7) ; (-11) - (-7)$$

$$= -11 - 7 ; (-11 + 7)$$

$$= -18 ; -4$$

$$\text{As } -18 < -4$$

$$ii) 23 - 41 + 11 ; 23 - 41 - 11$$

$$= 34 - 41 ; 23 - 52$$

$$= -7 ; -29$$

$$\therefore -7 > -29$$

$$iii) 40 - (-39) + (-5) ; 40 + (-39) - (-5)$$

$$= 40 + 39 - 5 ; 40 - 39 + 5$$

$$= 74 - 5 ; 1 + 5$$

$$= 74 ; 6$$

$$\therefore 74 > 6$$

$$iv) (-3) + 13 - (15) ; 25 - (-2) + (-33)$$

$$-3 + 13 - 15 ; 25 + 2 - 33$$

$$13 - 18 ; 27 - 33$$

$$-5 ; -6$$

$$-5 > -6$$

EXERCISE: 1.2

- 1
- i) $-5, 2$ i.e. $-5 + 2 = -3$
 $-6, 3$ i.e. $-6 + 3 = -3$
- ii) $-2, 3$ i.e. $-2 - 3 = -5$ (Vice versa not possible)
- iii) $8, 4$ i.e. $8 - 4 = 4$ (Vice versa not possible)

2

i) $-8, -13$
i.e. $-8 - (-13)$
 $= -8 + 13$
 $= 5$

ii) $-12, 4$
i.e. $-12 + 4$
 $= -8$

iii) $-1, 2$
i.e. $-1 - 2 = -3$

3. $-6, -8$
i.e. $[-6 - (-8)]$
 $= -6 + 8 = 2$

4. A scored $-30, 20, 0$.

$$\text{Total Team A Scored} = -30 + 20 + 0 = -10.$$

$$\text{Team B Scored } 20, 0, -30.$$

$$\text{Total Team B Scored} = 20 + 0 + (-30) = -10.$$

Scored by Team A and B are same = -10, Yes.

$$5. \text{ Sum} = -72 + 233 + 84 + 72 + (-184) + (-37)$$

$$= -72 + 393 - 184 - 37$$

$$= 393 - 293$$

$$= 100$$

bodhiyla.com

EXERCISE: 1.3.

1

$$(i) 7 \times (-35) = -245$$

$$(ii) (-13) \times (-15) = 195$$

$$(iii) (-12) \times (-11) \times (-10) = (-12) \times (110) = -1320$$

$$(iv) (-13) \times 0 \times (-24) = 0$$

$$(v) (-1) \times (-2) \times (-3) \times (+4) = -24$$

$$(vi) (-3) \times (-6) \times (-2) \times (-1) = 18 \times 2 = 36$$

2

$$(i) 37 \times [6 + (-3)]$$

If a, b, c are integers, then $a \times (b+c) = a \times b + a \times c$

$$= 37 \times 6 + 37 \times (-3)$$

\therefore Both are equal, verified

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

If a, b, c are integers, then $a \times (b+c) = a \times b + a \times c$

$$= (-21) \times (-6) + (-21) \times (-4)$$

\therefore Verified.

3.

$$\begin{aligned} \text{i) } 8 \times 53 \times (-125) &= 8 \times (-125) \times 53 \\ &= -1000 \times 53 \\ &= -53,000 \end{aligned}$$

$$\begin{aligned} \text{ii) } (-8) \times (-2) \times 3 \times (-5) &= (-8) \times (-5) \times (-2) \times 3 \\ &= 40 \times 6 \\ &= 240 \end{aligned}$$

$$\begin{aligned} \text{iii) } (-6) \times 2 \times (-8) \times 5 &= (-6) \times (-8) \times 2 \times 5 \\ &= 48 \times 10 \\ &= 480 \end{aligned}$$

$$\begin{aligned} \text{iv) } 15 \times (-25) \times (-4) \times (-10) &= 15 \times (-10) \times (-25) \times (-4) \\ &= -150 \times 100 \\ &= -15,000 \end{aligned}$$

$$\begin{aligned} \text{v) } 26 \times (-48) + (-48) \times (-36) \\ &= (-48) [26 + (-36)] \\ &= (-48) [26 - 36] \\ &= (-48) \times (-10) \\ &= 480 \end{aligned}$$

$$\begin{aligned} \text{vi) } 724 \times (-56) + (-724) \times 44 \\ &= 724 \times (-56) + 724 \times (-44) \end{aligned}$$

$$\begin{aligned}
 &= 724 \times [-56 + (-44)] \\
 &= 724 \times [-56 - 44] \\
 &= 724 \times (-100) \\
 &= -72400
 \end{aligned}$$

$$\begin{aligned}
 \text{Vii) } (-47) \times 102 &= (-47) \times (100 + 2) \\
 &= -47 \times 100 + (-47) \times 2 \\
 &= -4700 + (-94) \\
 &= -4700 - 94 \\
 &= -4794.
 \end{aligned}$$

$$\begin{aligned}
 \text{Viii) } (-39) \times (-97) \\
 &= (-39) \times (-100 + 3) \\
 &= (-39) \times (-100) + (-39) \times 3 \\
 &= 3900 + (-117) \\
 &= 3900 - 117 \\
 &= 3783
 \end{aligned}$$

4.

$$i) (-4) \times x = 44$$

$$x = \frac{44}{-4} = \frac{44 \times -1}{-4 \times -1}$$

$$x = \frac{-44}{4} = -11$$

$$\text{ii) } 7 \times x = -42$$

$$x = \frac{-42}{7}$$

$$x = -6.$$

$$\text{iii) } x \times (-13) = 143$$

$$x = \frac{143}{-13} \times \frac{-1}{-1}$$

$$x = \frac{-143}{13}$$

$$\boxed{x = -11}$$

$$\text{iv) } (-5) \times _ = 0.$$

Any number multiplied with '0', we get 0.

So 0 is answer

$$\text{i.e. } -5 \times 0 = 0$$

5. For every one hour the temperature lowered at a rate of 5°C

For 8 hours it will be lowered by $5 \times 8 = 40^{\circ}\text{C}$

$$\begin{aligned} \text{Room temperature after freezing process} &= 32 - 40 \\ &= -8^{\circ}\text{C} \end{aligned}$$

6. Total number of questions = 10.

Marks given for correct answer = 5 and

Marks given for incorrect answer = -2

i) Rohit gets 4 correct and 6 incorrect answers.

$$\text{Rohit score} = 4 \times 5 + 6 \times (-2) = 20 - 12 = 8.$$

ii) Seema gets 5 correct and 5 incorrect answers.

$$\text{Seema's score} = 5 \times 5 + 5 \times (-2) = 25 - 10 = 15$$

iii) As Ritu attempted 7 questions and only 2 questions are correct, so, number of incorrect questions are $7 - 2 = 5$.

$$\text{Ritu's score} = 2 \times 5 + 5 \times (-2) = 10 - 10 = 0.$$

7 i) Let pair of integers be x, y .

product is -15 i.e. $xy = -15$

$$y = \frac{-15}{x} \text{ --- (1)}$$

Difference = 8

$$x - y = 8$$

From (1) $x - \left(\frac{-15}{x}\right) = 8$

$$\frac{x^2 + 15}{x} = 8$$

$$x^2 + 15 = 8x.$$

$$x^2 - 8x + 15 = 0$$

$$x^2 - 5x - 3x + 15 = 0$$

$$x(x-5) - 3(x-5) = 0$$

$$(x-3)(x-5) = 0$$

$$x = 3, x = 5$$

$$y = \frac{-15}{3} ; y = \frac{-15}{5}$$

$$y = -5 ; y = -3$$

\therefore The pair of integers are 3, -5, 5, -3.

Alternative method for (ii)

Product is -36

Difference is 13

We know

$$12 \times (-3) = -36 ; (-12) \times 3 = -36$$

$$9 \times (-4) = -36 ; (-9) \times 4 = -36$$

Thus, we have pair of integers 12, -3 ; -12, 3 ; 9, -4 ; -9, 4

Such that product of each pair is -36.

But Difference of 9, -4 = $9 - (-4) = 9 + 4 = 13$ (m)

Difference of -9, 4 = $-9 - 4 = -13$.

Hence the required pairs are 12, -3 or -12, 3.

EXERCISE : 1.4

I

$$\begin{aligned} \text{(i)} \quad & (-36) \div (-9) \\ & = +(36 \div 9) = +4 \\ & = 4 \end{aligned}$$

$$\begin{aligned} \text{ii)} \quad & 150 \div (-25) \\ & = -(150 \div 25) \\ & = -6 \end{aligned}$$

$$\begin{aligned} \text{iii)} \quad & (-270) \div 27 \\ & = -(270 \div 27) \\ & = -10 \end{aligned}$$

$$\begin{aligned} \text{iv)} \quad & (-59) \div (59) \\ & = -(59 \div 59) \\ & = -1 \end{aligned}$$

$$\begin{aligned} \text{v)} \quad & 0 \div (-12) \\ & = 0 \end{aligned}$$

$$\begin{aligned} \text{vi)} \quad & (-784) \div (-56) \\ & = +(784 \div 56) \\ & = +14 \\ & = 14 \end{aligned}$$

$$2. \text{ i) } 13 \div [(-2)+1]$$

$$= 13 \div [-2+1]$$

$$= 13 \div [-1]$$

$$= -[13 \div 1]$$

$$= -13.$$

$$\text{ii) } (-47) \div [(-45)+(-2)]$$

$$= (-47) \div [-45-2]$$

$$= (-47) \div (-47)$$

$$= +[47 \div 47]$$

$$= 1$$

$$\text{iii) } [(-6)+5] \div [(-2)+1]$$

$$= [-6+5] \div [-2+1]$$

$$= (-1) \div (-1)$$

$$= 1$$

$$\text{iv) } [(-48) \div (-6)] \div (-2)$$

$$= [+ (48 \div 6)] \div (-2)$$

$$= [8] \div (-2)$$

$$= -[8 \div 2]$$

$$= -4.$$

$$3. (a \div b) \div c$$

$$= [(-225) \div 15] \div (-3)$$

$$= [-(225 \div 15)] \div (-3)$$

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

$$= +(15 \div 3)$$

$$= 5$$

$$a \div (b \div c)$$

$$= (-225) \div (15 \div (-3))$$

$$= (-225) \div (-(15 \div 3))$$

$$= (-225) \div (-5)$$

$$= +(225 \div 5)$$

$$= 45$$

$$5 \neq 45$$

\therefore Verified

4.

$$i) a \div (b+c)$$

$$= (-10) \div (1+1)$$

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

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

$$= -5$$

$$(a \div b) + (a \div c)$$

$$= (-10 \div 1) + (-10 \div 1)$$

$$= -10 + (-10)$$

$$= -10 - 10$$

$$= -20$$

$$-5 \neq -20$$

\therefore Verified

$$ii) a \div (b+c)$$

$$= 12 \div (1+(-2))$$

$$= 12 \div (1-2)$$

$$(a \div b) + (a \div c)$$

$$= (12 \div 1) + (12 \div (-2))$$

$$= 12 + [-(12 \div 2)]$$

$$= 12 \div (-1) \quad ; \quad 12 + [-6]$$

$$= -(12 \div 1) \quad ; \quad 12 - 6$$

$$= -12 \quad ; \quad 6$$

$$-12 \neq 6$$

\therefore Verified.

5. We know $a \div a = 1$ $-a \div a = -1$

i) $239 \div \underline{239} = 1$

ii) $(-85) \div \underline{85} = -1$

iii) $(-213) \div \underline{(-213)} = 1$

iv) $(-43) \div \underline{(-1)} = 43$

v) $\underline{(-84)} \div \underline{(-21)} = 4$

vi) $\underline{(-66)} \div \underline{22} = -3$

6. $a \div b = -3$

$$\frac{a}{b} = -3 \Rightarrow a = -3b$$

$$b=1 ; a = -3 \times 1 = -3$$

$$b=2 ; a = -3 \times 2 = -6$$

$$b=3 ; a = -3 \times 3 = -9$$

$$b=4 ; a = -3 \times 4 = -12$$

$$b=5 ; a = -3 \times 5 = -15$$

\therefore Five pairs are $(-3, 1)$ $(-6, 2)$ $(-9, 3)$ $(-12, 4)$ $(-15, 5)$

7.

i) Marks scored for 14 correct answers = $14 \times 3 = 42$

Sachin's score = 24.

\therefore Marks obtained for incorrect answers = $42 + 24$
 $= -18$.

\therefore The number of incorrect answers = $(-18) \div (-2)$
 $= 9$.

ii) Marks scored for 9 correct answers = ~~9×3~~ = 9×3
 $= 27$

Nalini's score = -7

\therefore Marks obtained for incorrect answers = $-7 - 27$
 $= -34$

Mark given for one incorrect answer = -2 .

\therefore The number of incorrect answers = $(-34) \div (-2)$
 $= 34 \div 2$
 $= 17$

8.

Elevator descends at a rate of 6 m/min.

Descend starts from 10 m above ground level.

It has to reach the shaft 350 m below ground level

Total 360 m it has to reach

$$\text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

$$= \frac{360}{6}$$

$$= 60 \text{ min}$$

\therefore Time = 1 hour

\therefore It will take 1 hour to reach the shaft

bodhiyla.com

EXERCISE: 1.5.

1. $7 - 8 \div (-2) + 3 \times (-4)$

According to BODMAS rule

$$= 7 - (-4) + 3 \times (-4)$$

$$= 7 + 4 + (-12)$$

$$= 11 - 12$$

$$= -1$$

2. $9 - \{7 - 24 \div (8 + 6 \times 2 - 16)\}$

$$= 9 - \{7 - 24 \div (8 + 12 - 16)\}$$

$$= 9 - \{7 - 24 \div (4)\}$$

$$= 9 - \{7 - 6\}$$

$$= 9 - 1$$

$$= 8$$

3. $-11 - [-6 - \{3 - 5(8 \div 4 - 1)\}]$

$$= -11 - [-6 - \{3 - 5(2 - 1)\}]$$

$$= -11 - [-6 - \{3 - 5(1)\}]$$

$$= -11 - [-6 - \{3 - 5\}]$$

$$= -11 - [-6 - (-2)]$$

$$= -11 - [-6 + 4]$$

$$= -11 - (-2)$$

$$= -11 + 2$$

$$= -9$$

$$4. (-3) \times (-12) \div (-4) + 3 \times 6$$

$$= (-3) \times 3 + 3 \times 6$$

$$= (-3) \times 3 + 18$$

$$= -9 + 18$$

$$= 9$$

$$5. 14 \div (3(2-3+4)) - 9(5-3)$$

$$= 14 \div (6-9+12) - 45 + 27$$

$$= 14 \div (9) - 18$$

$$= \frac{14}{9} - 18$$