

CLASS 7 INTEGERS

Exercise 1.2

1. Write down a pair of integers whose:

a) Sum is -7

b) Difference is -10

c) Sum is 0

Ans.

One such pair could be:

a) -10, 3

b) -6, 4

c) -3, 3

2. a) Write a pair of negative integers whose difference gives 8.

b) Write a negative integer and a positive integer whose sum is -5.

c) Write a negative integer and a positive integer whose difference is -3.

Ans. One such pair could be:

a) -2, -10; $[-2 - (-10) = 8]$

b) -6, 1; $[-6 + 1 = -5]$

c) -1, 2; $[-1 - 2 = -3]$

3. In a quiz, team A scored -40, 10, 0 and team B scored 10, 0, -40 in three successive rounds. Which team scored more? Can we say that we can add integers in any order?

Ans.

Team A scored -40, 10, and 0.

Total score = $-40 + 10 + 0 = -30$

Team B scored 10, 0 and -40.

Total score = $10 + 0 + (-40) = -30$

Scores of both the teams are same.

Yes, we can add integers in any order.

4. Fill in the blanks to make the following statements true:

i) $(-5) + (-8) = (-8) + (\dots\dots\dots)$

ii) $-53 + \dots\dots\dots = -53$

iii) $17 + \dots\dots\dots = 0$

iv) $[13 + (-12)] + (\dots\dots\dots) = 13 + [(-12) + (-7)]$

v) $(-4) + [15 + (-3)] = [-4 + 15] + \dots\dots\dots$

Ans.

i) -5

ii) 0

iii) -17

iv) -7

v) -3

Exercise 1.3

1. Find each of the following products:

a) $3 \times (-1)$

b) $(-1) \times 225$

c) $(-21) \times (-30)$

d) $(-316) \times (-1)$

e) $(-15) \times 0 \times (-18)$

f) $(-12) \times (-11) \times 10$

g) $9 \times (-3) \times (-6)$

h) $(-18) \times (-5) \times (-4)$

i) $(-1) \times (-2) \times (-3) \times 4$

j) $(-3) \times (-6) \times (-2) \times (-1)$

Ans.

a) -3

b) -225

c) 630

d) 316

e) 0

f) $132 \times 10 = 1320$

g) $-27 \times -6 = 162$

h) $90 \times -4 = -360$

i) $2 \times (-12) = -24$

j) $18 \times 2 = 36$

2. Verify the following:

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

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

Ans.

a) LHS = $18 \times [7 + (-3)] = 18 \times 4 = 72$

RHS = $[18 \times 7] + [18 \times (-3)] = 126 + (-54) = 72$

Therefore LHS = RHS.

b) LHS = $(-21) \times [(-4) + (-6)] = (-21) \times (-10) = 210$

RHS = $[(-21) \times (-4)] + [(-21) \times (-6)] = 84 + 126 = 210.$

Therefore, LHS = RHS.

3. i) For any integer a, what is $(-1) \times a$ equal to?

ii) Determine the integer whose product with (-1) is

a) -22

b) 37

c) 0

Ans. i) $(-1) \times a = -a$

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

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

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

4. Starting from $(-1) \times 5$, write various products showing some pattern to show $(-1) \times (-1) = 1$.

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

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

$$(-1) \times 3 = -3 = -4 + 1$$

$$(-1) \times 2 = -2 = -3 + 1$$

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

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

So $(-1) \times (-1) = 0 + 1 = 1$.

5. Find the product, using suitable properties:

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

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

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

d) $(-41) \times 102$

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

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

g) $(-17) \times (-29)$

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

Ans.

a) Here we can use the distributivity of multiplication over addition

$$26 \times (-48) + (-48) \times (-36) = (-48) [26 + (-36)] = (-48) \times (-10) = 480$$

b) Here we can use the associativity of multiplication.

$$8 \times 53 \times (-125) = (8 \times (-125)) \times 53 = -1000 \times 53 = -53000$$

$$c) [(-25) \times (-4)][15 \times (-10)] = 100 \times -150 = -15000$$

d) $(-41) \times 102 = (-41) \times (100 + 2)$ by distributivity of multiplication over addition.

$$= (-41) \times 100 + (-41) \times 2$$

$$= -4100 + -82$$

$$= -4182$$

e) $625 \times (-35) + (-625) \times 65 = -625 \times (35 + 65) = -625 \times 100 = -62500$ by distributivity

f) $7 \times (50 - 2) = 7 \times 50 - 7 \times 2$ by distributivity of multiplication over subtraction.

$$= 350 - 14 = 336$$

$$g) (-17) \times (-29) = 493$$

$$h) (-57) \times (-19) + 57 = 57(19 + 1) = 57 \times 20 = 1140$$

6. A certain freezing process requires that room temperature be lowered from 40°C at the rate of 5°C every hour. What will be the room temperature 10 hours after the process begins?

Ans. present room temperature = 40°C

Decreasing temperature at every hour = 5°C

We can take decreasing temperature as -5°C

Therefore, the room temperature 10 hours after the process begins = $40 + (10 \times -5) = 40 + -50 = -10^\circ\text{C}$.

7. In a class test containing 10 questions, 5 marks are awarded for every correct answer and (-2) marks are awarded for every incorrect answer and 0 for questions not attempted.

i) Mohan gets four correct and six incorrect answers. What is his score?

ii) Reshma gets five correct answers and five incorrect answers, what is her score?

iii) Heena gets two correct and five incorrect answers out of seven questions she attempts. What is her score?

Ans.

i) For four correct answers, Mohan gets $4 \times 5 = 20$ marks.

For six incorrect answers, Mohan gets $6 \times -2 = -12$ marks

Mohan's score = $20 + (-12) = 8$ marks

ii) For five correct answers, Reshma gets $5 \times 5 = 25$ marks

For five incorrect answers, Reshma gets $5 \times -2 = -10$ marks.

Reshma's score = $25 + (-10) = 15$ marks

iii) For two correct answers, Heena gets $2 \times 5 = 10$ marks

For five incorrect answers, Heena gets $5 \times -2 = -10$ marks.

Heena's score = $10 + (-10) = 0$ marks

8. A cement company earns a profit of Rs 8 per bag of white cement sold and a loss of Rs 5 per bag of grey cement sold.

a) The company sells 3000 bags of white cement and 5000 bags of grey cement in a month. What is its profit or loss?

b) What is the number of white cement bags it must sell to have neither profit nor loss, if the number of grey bags sold is 6400 bags.

Ans.

Profit of one bag of white cement = Rs 8

Loss of one bag of grey cement = Rs 5

We can take profit as +8 and loss as -5.

a) Profit of 3000 bags of white cement = $3000 \times 8 = 24000$

Loss of 5000 bags of grey cement = $5000 \times -5 = -25000$.

Total profit/loss = $24000 + (-25000) = -1000$

Since profit < loss, there is a loss of 1000 rupees.

b) Let the number of white cement bags = x

Neither profit nor loss means profit = loss

Therefore, $x \times 8 = 5 \times 6400$

$$x = \frac{5 \times 6400}{8} = 4000 \text{ bags}$$

Therefore, the number of white cement bags it must sell to have neither profit nor loss = 4000 bags.

9. Replace the blank with an integer to make it a true statement.

a) $(-3) \times \text{-----} = 27$

b) $5 \times \text{-----} = -35$

c) $\text{-----} \times (-8) = -56$

d) $\text{-----} \times (-12) = 132$

Ans.

a) -9

b) -7

c) 7

d) -11

