NCERT Solutions For Class 7 Maths Integers Exercise 1.3

Q1. Find each of the following products:

(a) 3 x (- 1) (b) (- 1) x 225

(c) (- 21) x (- 30) (d) (- 316) x (- 1)

(e) (- 15) x 0 x (-18) (f) (- 12) x (- 11) x (10)

(g) 9 x (- 3) x (- 6) (h) (- 18) x (- 5) x (- 4)

(i) (- 1) x (-2) x (- 3) x 4

(j) (- 3) x (- 6) x (- 2) x (- 1)

Ans:

(a) 3 x (-1) = -3

(b) (-1) x 225 = -225

(c) (-21) x (-30) = 630

(d) (-316) x (-1) = 316

(e) (-15) x 0 x (-18) = 0

(f) (-12) x (-11) x 10 = 1320

(g) 9 x (-3) x (-6) = 162

(h) (-18) x (-5) x (-4) = -360

(i) (-1) x (-2) x (-3) x 4 = -24

(j) (-3) x (-6) x (-2) x (-1) = 36

Q2. Verify the following:

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

(b)

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

Ans:

(a) L.H.S. = 18 × [7 + (- 3)] = 18 × [7 - 3] = 18 × 4 = 72

R.H.S. = [18 × 7] + [18 × (- 3)] = 126 + (- 54) = 72

Hence, $18\times\left[7+(-3)\right]=[18\times 7]+\left[18\times(-3)\right]$

(b) L.H.S. = (- 21) × [(- 4) + (- 6)] = (- 21) × [- 4 - 6] = (- 21) × [- 10] = 210

R.H.S. = [(- 21) × (- 4)] + [(- 21) × (- 6)] = 84 + 126 = 210

Hence,
$(-21)\times\left[(-4)+(-6)\right]=\left[(-21)\times(-4)\right]+\left[(-21)\times(-6)\right]$

Q3. (i) For any integer *a*, what is (- 1) x*a* equal to?

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

(a) - 22 (b) 37 (c) 0

Ans:

(i) As per the question, there will be three cases possible because we can divide number line among negative integers, 0 and positive integers.

So, case 1: When *a* is any negative ineteger, that is, -a,
then (- 1) × (-*a*) = *a*
So, case 2: When *a* is 0,
then (- 1) × 0 = 0
So, case 3: When *a* is any positive ineteger, that is, a,
then (- 1) × *a* = -*a*
Thus, the possible answers area, 0 and -a.

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

(b)[Math Processing Error]

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

Q4. Starting from (- 1) x 5, write various products showing some pattern to show (- 1) x (- 1) =1.

Ans:

-1 x 5 = -5

-1 x 4 = -4 = - 5 + 1

-1 x 3 = -3 = - 4 + 1

-1 x 2 = -2 = - 3 + 1

-1 x 1 = -1 = - 2 + 1

-1 x 0 = 0 = - 1 + 1

Therefore, -1 x (-1) = 0 + 1 = 1

Q5. Find the product, using suitable properties:

(a) 26 x (- 48) + (- 48) x (- 36) (b) 8 x 53 x (-125)

(c) 15 x (- 25) x (- 4) x (- 10) (d) (- 41) x 102

(e) 625 x (- 35) + (- 625) x 65 (f) 7 x (50 - 2)

(g) (- 17) x (- 29) (h) (- 57) x (- 19) + 57

Ans:

(a) 26 x (-48) + (-48) x (-36)

= (-48) x 26 + (-48) x (-36) ($bxa=axb$)

= (-48) [26 - 36] ($axb+axc$) $=a(b+c)$

= (-48) x (-10) = 480

(b) 8 x 53 x (-125) = 8 x [53 x (-125)]

= 8 x [(-125) x 53] ($bxa=axb$)

= [8 x (-125)] x 53ax (bxc) = (axb) xc

= [-1000] x 53 = -53000

(c) 15 x (-25) x (-4) x (-10)

= 15 x [(-25) x (-4)] x (-10)

= 15 x [100] x (-10)

= 15 x (-1000) = -15000

(d) (-41) x 102

= (-41) x (100 + 2)

= (-41) x 100 + (-41) x 2ax (b+c) = (axb) + (axc)

= - 4100 - 82 = -4182

(e) 625 x (-35) + (-625) x 65

= 625 x [(-35) + (-65)] (axb) + (axc) =ax (b+c)

= 625 x [-100] = -62500

(f) 7 x (50 - 2)

= (7 x 50) - (7 x 2)ax (b-c) = (axb) - (axc)

= 350 - 14

= 336

(g) (-17) x (-29)

= (-17) x [-30 + 1]

= [(-17) x (-30)] + [(-17) x 1]ax (b+c) = (axb) + (axc)

= [510] + [-17] = 493

(h) (-57) x (-19) + 57

= 57 x 19 + 57 x 1

= 57 [19 + 1] $(axb) + (axc) = ax(b+c)$

= 57 x 20 = 1140

Q6. 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:

Initial temperature = 40°C

Change in temperature per hour = -5°C

Change in temperature after 10 hours = (-5) x 10 = -50°C

Final temperature = 40°C + (-50°C) = -10°C

Q7. 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) Marks given for 1 correct answer = 5

Marks given for 4 correct answers = 5 x 4 = 20

Marks given for 1 wrong answer = -2

Marks given for 6 wrong answers = -2 x 6 = -12

Score obtained by Mohan = 20 - 12 = 8

(ii) Marks given for 1 correct answer = 5

Marks given for 5 correct answers = 5 x 5 = 25

Marks given for 1 wrong answer = -2

Marks given for 5 wrong answers = -2 x 5 = -10

Score obtained by Reshma = 25 - 10 = 15

(iii) Similarly,

Marks given for 2 correct answers = 5 x 2 = 10

Marks given for 5 wrong answers = -2 x 5 = -10

Score obtained by Heena = 10 - 10 = 0

Q8. 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 3, 000 bags of white cement and 5,000 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 6,400 bags.

Ans:

Profit is denoted by a positive integer and loss is denoted by a negative integer.

(a) Profit earned while selling 1 bag of white cement = Rs 8

Profit earned while selling 3000 bags of white cement = 8 x 3000

= 24000

Loss incurred while selling 1 bag of grey cement = -Rs 5

Loss incurred while selling 5000 bags of grey cement = -5 x 5000

= -25000

Total profit/loss earned = Profit + Loss

= 24000 + (-25000) = -1000

Therefore, a loss of Rs 1000 will be incurred by the company.

(b) Loss incurred while selling 1 bag of grey cement = -Rs 5

Loss incurred while selling 6400 bags of grey cement = (-5) x 6400

= -32000

Let the number of bags of white cement to be sold be x.

Profit earned while selling 1 bag of white cement = Rs 8

Profit earned while selling x bags of white cement = x x 8

= 8x

In condition of no profit no loss,

Profit earned + Loss incurred = 0

$8x + (-32000) = 0$

$8x = 32000$

$x = 4000$

Therefore, 4000 bags of white cement must be sold.

Q9. Replace the blank with an integer to make it a true statement.

(a) $(-3) \times \_\_\_\_\_ = 27$

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

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

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

Ans:

(a) $(-3) \times \underline{\ (-9)\ } = 27$

(b) $5 \times \underline{\ (-7)\ } = -35$

(c) $\underline{\ 7\ } \times (-8) = -56$

(d) $\underline{\ (-11)\ } \times (-12) = 132$

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