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(Chapter - 1) (Integers) (Class - VII)

Exercise 1.3

Question 1:

Find the each of the following products:

- (a) $3 \times (-1)$
- (c) (-21) x (-30)
- (e) (-15) x 0 x (-18)
- (g) $9 \times (-3) \times (-6)$
- (i) (-1) x (-2) x (-3) x 4

- (b) (-1) x 225
- (d) (-316) x (-1)
- $(f) (-12) \times (-11) \times (10)$
- (h) (-18) x (-5) x (-4)
- (j) (-3) x (-6) x (2) x (-1)

Answer 1:

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

Ouestion 2:

Verify the following:

- (a) $18 \times [7 + (-3)] = [18 \times 7] + [18 \times (-3)]$
- (b) (-21) x [(-4) + (-6)] = [(-21) x (-4)] + [(-21) x (-6)]

Answer 2:

- (a) $18 \times [7 + (-3)] = [18 \times 7] + [18 \times (-3)]$
 - \Rightarrow 18 x 4 = 126 + (-54)
- \Rightarrow 72 = 72
- \Rightarrow L.H.S. = R.H.S.

Hence verified.

- (b) $(-21) \times [(-4) + (-6)] = [(-21) \times (-4)] + [(-21) \times (-6)]$
 - \Rightarrow (-21) x (-10) = 84 + 126 \Rightarrow 210 = 210
 - \Rightarrow L.H.S. = R.H.S.

Hence verified.

Question 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

Answer 3:

- (i) $(-1) \times a = -a$, where a is an integer.
- (ii) (a) $(-1) \times (-22) = 22$
 - (b) $(-1) \times 37 = -37$
 - (c) $(-1) \times 0 = 0$

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Question 4:

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

Answer 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.

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

Answer 5:

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

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

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

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

[Distributive property]

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

$$\Rightarrow 53 \times [8 \times (-125)]$$

$$\Rightarrow$$
 53×(-1000)

$$\Rightarrow$$
 -53000

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

$$\Rightarrow 15 \times \lceil (-25) \times (-4) \times (-10) \rceil$$

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

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

$$\Rightarrow -41 \times [100 + 2]$$

$$\Rightarrow \left[(-41) \times 100 \right] + \left[(-41) \times 2 \right]$$

$$\Rightarrow$$
 $-4100+(-82)$

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

$$\Rightarrow 625 \times \left[(-35) + (-65) \right]$$

[Distributive property]

$$\Rightarrow$$
 625×(-100)

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

$$\Rightarrow 7 \times 50 - 7 \times 2$$

[Distributive property]

$$\Rightarrow$$
 350-14=336

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

$$\Rightarrow (-17) \times [(-30) + 1]$$

[Distributive property]

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

$$\Rightarrow$$
 510+(-17)

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

$$\Rightarrow$$
 $(-57)\times(-19)+57\times1$

$$\Rightarrow$$
 57 x 19 + 57 x 1

$$\Rightarrow$$
 57 x (19 + 1)

$$\Rightarrow$$
 57 x 20 = 1140

[Distributive property]

Question 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?

Answer 6:

Given: Present room temperature = 40°C

Decreasing the temperature every hour = 5°C

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

$$=40^{\circ}\text{C} - 50^{\circ}\text{C} = -10^{\circ}\text{C}$$

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

Question 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?

Answer 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.

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- (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 Resham = 25 + (-10) = 15Thus, 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 Resham = 10 + (-10) = 0Thus, Reshma gets 0 marks in a class test.

Question 8:

A cement company earns a profit of ₹8 per bag of white cement sold and a loss of ₹ 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.

Answer 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 x ₹ 8 = ₹ 24,000 Loss of selling 5000 bags of grey cement = 5000 x ₹ 5 = ₹ 25,000 SinceProfit < 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

∴
$$5 \times 6,400 = x \times 8$$

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

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

Question 9:

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

(a)
$$(-3) \times \underline{\hspace{1cm}} = 27$$

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

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

Answer 9:

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

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

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

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

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