

Board – CBSE

Class – 7th

Topic – Integer 1.3

Q.1 Find the 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) $(-3) \times (-6) \times (-2) \times (-1)$

Sol:

(a) $3 \times (-1) = -3$

(b) $(-1) \times 225 = -225$

(c) $(-21) \times (-30) = 630$

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

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

(f) $(-12) \times (-11) \times (10) = 132 \times 10 = 1320$

(g) $9 \times (-3) \times (-6) = 9 \times 18 = 162$

(h) $(-18) \times (-5) \times (-4) = 90 \times (-4) = -360$

(i) $(-1) \times (-2) \times (-3) \times 4 = (-6 \times 4) = -24$

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

Q.2 Verify the following:

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

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

Sol:

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

$\Rightarrow 18 \times 4 = 126 + (-54)$

$\Rightarrow 72 = 72$

\Rightarrow L.H.S. = R.H.S. Hence verified.

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

$\Rightarrow (-21) \times (-10) = 84 + 126$

$\Rightarrow 210 = 210$

\Rightarrow L.H.S. = R.H.S. Hence verified.

- Q.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

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

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

- Sol:** $= -1 \times 5 = -5$
 $= -1 \times 4 = -4$
 $= -1 \times 3 = -3$
 $= -1 \times 2 = -2$
 $= -1 \times 1 = -1$
 $= -1 \times 0 = 0$
 $= -1 \times -1 = 1$

Thus, we can conclude that this pattern shows the product of one negative integer and one positive integer whereas the product of two negative integers is a positive integer.

- Q.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) $625 \times (-35) + (-625) \times 6$
(f) $7 \times (50 - 2)$
(g) $(-17) \times (-29)$

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

Sol: (a) $26 \times (-48) + (-48) \times (-36)$
 $\Rightarrow (-48) \times [26 + (-36)]$ [Distributive property]
 $\Rightarrow (-48) \times (-10)$
 $\Rightarrow 480$

(b) $8 \times 53 \times (-125)$
 $\Rightarrow 53 \times [8 \times (-125)]$ [Commutative property]
 $\Rightarrow 53 \times (-1000)$
 $\Rightarrow -53000$

(c) $15 \times (-25) \times (-4) \times (-10)$
 $\Rightarrow 15 \times [(-25) \times (-4) \times (-10)]$ [Commutative property]
 $\Rightarrow 15 \times (-1000)$
 $\Rightarrow -15000$

(d) $(-41) \times (102)$
 $\Rightarrow -41 \times [100 + 2]$ [Distributive property]
 $\Rightarrow [(-41) \times 100] + [(-41) \times 2]$
 $\Rightarrow -4100 + (-82)$
 $\Rightarrow -4182$

(e) $625 \times (-35) + (-625) \times 65$
 $\Rightarrow 625 \times [(-35) + (-65)]$ [Distributive property]
 $\Rightarrow 625 \times (-100)$
 $\Rightarrow -62500$

(f) $7 \times (50 - 2)$
 $\Rightarrow 7 \times 50 - 7 \times 2$ [Distributive property]
 $\Rightarrow 350 - 14$
 $\Rightarrow 336$

(g) $(-17) \times (-29)$
 $\Rightarrow (-17) \times [(-30) + 1]$ [Distributive property]

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

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

$$\Rightarrow 493$$

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

$$\Rightarrow (-57) \times (-19) + 57 \times 1$$

$$\Rightarrow 57 \times 19 + 57 \times 1$$

$$\Rightarrow 57 \times (19 + 1) \text{ [Distributive property]}$$

$$\Rightarrow 57 \times 20$$

$$\Rightarrow 1140$$

Q.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?

Sol: Present room temperature = 40°C

Decreasing the temperature every hour = 5°C

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

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

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

Q.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?

Sol: (i) Marks for four correct questions = $4 \times 5 = 20$

Marks for six incorrect questions = $6 \times (-2) = -12$

Therefore, the total score of Mohan = $(4 \times 5) + [6 \times (-2)] = 20 - 12 = 8$

Thus, Mohan gets 8 marks in a class test.

(ii) Marks for five correct questions = $5 \times 5 = 25$

Marks for five incorrect questions = $5 \times (-2) = -10$

Therefore, the total score of Reshma = $25 + (-10) = 15$

Thus, Reshma gets 15 marks in a class test.

(iii) Marks for two correct questions = $2 \times 5 = 10$

Marks for five incorrect questions = $5 \times (-2) = -10$

Therefore, the total score of Resham = $10 + (-10) = 0$

Thus, Reshma gets 0 marks in a class test.

Q.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 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.

Sol: Given: Profit of 1 bag of white cement = Rs. 8

And Loss of 1 bag of grey cement = Rs. 5

(a) Profit on selling 3000 bags of white cement = $3000 \times 8 = \text{Rs. } 24,000$

Loss of selling 5000 bags of grey cement = $5000 \times 5 = \text{Rs. } 25,000$

Since Profit < Loss

Therefore, the total loss on selling the grey cement bags = Loss - Profit

$$= 25,000 - 24,000$$

$$= \text{Rs. } 1,000$$

Thus, the loss is Rs. 1,000.

(b) Let the number of bags of white cement be x .

According to question, Loss = Profit

$$\Rightarrow 5 \times 6400 = x \times 8$$

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

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

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

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

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

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

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

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

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

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

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