

ASSIGNMENT - UNIT-I

CLASS : 7th

SUBJECT : MATH

CHAPTER : SIMPLE EQUATIONS

LESSON No: 04

Exercise No: 4.1

Q1:→ Check whether the value of the variable given in the bracket is a solution of the equation or not. write 'No' or 'Yes'.

(a) $5x = 25$ ($x = 20$)

Sol:- $5x = 25$

Taking LHS

⇒ $5x$

⇒ $5(20)$ put $x = 20$

⇒ 100

⇒ $LHS \neq RHS.$

'No' $x = 20$ is not a solution.

(c) $3n + 4 = 7$ ($n = 1$)

Sol:→ $3n + 4 = 7$

Taking LHS

$3n + 4$

⇒ $3(1) + 4$ put $n = 1$

⇒ $3 + 4$

⇒ 7

⇒ $LHS = RHS$

⇒ 'Yes' $n = 1$ is a solution

(e) $x + 3 = 2$ ($x = 1$)

Sol:→ $x + 3 = 2$

Taking LHS

$$x + 3$$

$$\Rightarrow 1 + 3$$

$$\Rightarrow 4$$

$$\Rightarrow \text{LHS} \neq \text{RHS}$$

$\Rightarrow$ 'No' $x = 1$ is not a solution $\rightarrow$

$\rightarrow$ [Do remaining parts by your self].

Q2: $\rightarrow$ Write an equation for each of the following:

a) The twice the sum of x and 5 is 12.

$$\text{Sol:} \rightarrow 2(x + 5) = 12$$

b) 5 added to thrice the number y is 17.

$$\text{Sol:} \rightarrow 5 + 3y = 17$$

c) Adding 1 to one-third of m is 5.

$$\text{Sol:} \rightarrow 1 + \frac{1}{3}m = 5$$

d) Seven times p plus 5 is equal to 36.

$$\text{Sol:} \rightarrow 7p + 5 = 36$$

e) The sum of three times of x & 9 is 15.

$$\text{Sol:} \rightarrow 3x + 9 = 15$$

Q3: $\rightarrow$ Find the value of the variable for which the statement is true:

a) $8 - x = 3x$

$$\text{Sol:} \rightarrow 8 - x = 3x$$

$$\Rightarrow 8 = 3x + x$$

$$\Rightarrow 8 = 4x$$

$$\text{or } 4x = 8$$

$$\Rightarrow x = \frac{8}{4}$$

$$\Rightarrow x = 2$$

c) $7 + z = -1$

$$\text{Sol:} \rightarrow 7 + z = -1$$

$$\Rightarrow z = -1 - 7$$

$$\Rightarrow z = -8$$

d) $3p - 7 = 2p - 3$

$$\text{Sol:} \rightarrow 3p - 7 = 2p - 3$$

$$\Rightarrow 3p - 2p = -3 + 7$$

$$\Rightarrow 1p = 4$$

f) $3y - 3 = 3$

$$\text{Sol:} \rightarrow 3y - 3 = 3$$

$$\Rightarrow 3y = 3 + 3$$

$$\Rightarrow 3y = 6$$

$$\Rightarrow y = \frac{6}{3}$$

$$\Rightarrow y = 2$$

Q4: Find the solution of each equation:

103)

a) $p - 2 = 2$
 Sol: $p - 2 = 2$
 $\Rightarrow p = 2 + 2$
 $\Rightarrow p = 4$

d) $3p = 0$
 Sol: $3p = 0$
 $\Rightarrow p = \frac{0}{3}$
 $\Rightarrow p = 0$

h) $x - 12 = 2$
 Sol: $x - 12 = 2$
 $\Rightarrow x = 2 + 12$
 $\Rightarrow x = 14$

Q5: Solve the following equations:

a) $\frac{x}{3} + 3 = 2$
 Sol: $\frac{x}{3} + 3 = 2$
 $\Rightarrow \frac{x}{3} = 2 - 3$
 $\Rightarrow \frac{x}{3} = -1$
 $\Rightarrow x = -1 \times 3$ (by cm)
 $\Rightarrow x = -3$

d) $\frac{3p}{4} = 12$
 Sol: $\frac{3p}{4} = 12$
 $\Rightarrow 3p = 12 \times 4 \rightarrow$ (by cm)
 $\Rightarrow 3p = 48$
 $\Rightarrow p = \frac{48}{3}$
 $\Rightarrow p = 16$

c) $3x + 5 = 26$
 Sol: $3x + 5 = 26$
 $\Rightarrow 3x = 26 - 5$
 $\Rightarrow 3x = 21$
 $\Rightarrow x = \frac{21}{3}$

$\Rightarrow x = 7$
 (f) $2 = 7 - t$
 Sol: $2 = 7 - t$
 $\Rightarrow 2 - 7 = -t$
 $\Rightarrow -5 = -t$
 $\Rightarrow \text{or, } t = 5$

i) $2p + 3 = p + 5$
 Sol: $2p + 3 = p + 5$
 $\Rightarrow 2p - p = 5 - 3$
 $\Rightarrow 1p = 2$

c) $5(x + 4) = 25$
 Sol: $5(x + 4) = 25$
 $\Rightarrow 5x + 5(4) = 25$
 $\Rightarrow 5x + 20 = 25$
 $\Rightarrow 5x = 25 - 20$
 $\Rightarrow 5x = 5$
 $\Rightarrow x = \frac{5}{5}$
 $\Rightarrow x = 1$

e) $\frac{x-4}{2} = 6$
 Sol: $\frac{x-4}{2} = 6$
 $\Rightarrow x - 4 = 2 \times 6$ - by cm
 $\Rightarrow x - 4 = 12$
 $\Rightarrow x = 12 + 4$
 $\Rightarrow x = 16$

$\rightarrow$ [Do the remaining parts by your self].

Q6:→ Set up an equation for each of the following cases.
Also find the solution of the equation:

a)→ Amit has 3 marble more than 2 times the marble that Amina has. Amit has 25 marbles. How many marbles does Amina have?

Sol:→ Let Amina have x marbles
Amit have 25 marbles.

Ac. to Question

$$3 + 2x = 25$$

$$\Rightarrow 2x = 25 - 3$$

$$\Rightarrow 2x = 22$$

$$\Rightarrow x = \frac{22}{2}$$

$$\Rightarrow x = 11$$

∴ Amina have 11 marbles.

b)→ In an isosceles triangle, the vertex angle is twice the each base angle. Find the vertex angle:

Sol:→ Let the each base angle be x .
Then, vertex angle be $2x$.

Ac. to Q.

$$x + x + 2x = 180^\circ$$

- ASP

$$\Rightarrow 4x = 180^\circ$$

$$\Rightarrow x = \frac{180}{4} = 45$$

$$\Rightarrow x = 45^\circ$$

∴ Measure of each base angle is 45°

$$\begin{aligned} \text{Vertex angle} &= 2x \\ &= 2 \times 45^\circ \\ &= 90^\circ \end{aligned}$$

c) Sumit's mother is 24 years old. She is 3 years older than three times Sumit's age. What is the age of Sumit?

Sol: $\Rightarrow$ let Sumit's age be x .

Age of Sumit's mother = 24 years
Ac. to Q

$$3 + 3x = 24$$

$$\Rightarrow 3x = 24 - 3$$

$$\Rightarrow 3x = 21$$

$$\Rightarrow x = \frac{21}{3}$$

$$\Rightarrow x = 7$$

$\therefore$ Age of Sumit is 7 years.

Q) Ramesh's father's age is 6 years more than four times Ramesh's age. Ramesh's father is 42 years old. Find Ramesh's age?

Sol: $\Rightarrow$ let Ramesh's age be x .

Age of Ramesh's father is 42 years.
Ac. to Q

$$6 + 4x = 42$$

$$\Rightarrow 4x = 42 - 6$$

$$\Rightarrow 4x = 36$$

$$\Rightarrow x = \frac{36}{4}$$

$$\Rightarrow x = 9$$

$\therefore$ Age of Ramesh is 9 years.

Q7: Mohan thinks of a number. He multiplies the no. by 4 and then adds 8 to the product. If he gets 36, what number does he think?

Sol: $\Rightarrow$ let the number be x .
Ac. to Q

$$4x + 8 = 36$$

$$\Rightarrow 4x = 36 - 8$$

$$\Rightarrow 4x = 28$$

$$\Rightarrow x = \frac{28}{4}$$

$$\Rightarrow x = 7$$

$\therefore$ The reqd. no. is 7.

Q1:→ The sum of 10 and an unknown number is 25.
Find the unknown number.

Sol:→ let the number be x .

Ac. to Q.

$$10 + x = 25$$

$$\Rightarrow x = 25 - 10$$

$$\Rightarrow x = 15$$

∴ the reqd. number is 15.

Q2:→ Of a certain number subtracted by 21 is 81.
Find the number.

Sol:→ let the number be x .

Ac. to Q.

$$x - 21 = 81$$

$$\Rightarrow x = 81 + 21$$

$$\Rightarrow x = 102$$

∴ the reqd. number is 102.

Q3:→ A number when divided by 7 gives 5. Find the no.

Sol:→ let the number be x .

Ac. to Q

$$\frac{x}{7} = 5$$

$$\Rightarrow x = 5 \times 7 \quad \text{— by CM}$$

$$\Rightarrow x = 35$$

∴ the reqd. number is 35.

Q4:→ The sum of three consecutive integers is 36.
Find the numbers.

Sol:→ let the three consecutive integers be
 x , $(x+1)$ and $(x+2)$

Ac. to Q

$$\Rightarrow x + (x+1) + (x+2) = 36$$

$$\Rightarrow x + x + 1 + x + 2 = 36$$

$$\Rightarrow 3x + 3 = 36$$

$$\Rightarrow 3x = 36 - 3$$

$$\Rightarrow 3x = 33$$

$$\Rightarrow x = \frac{33}{3}$$

$$\Rightarrow x = 11$$

$\therefore$ 1st consecutive integer is $x = 11$

$$\begin{aligned} \text{2nd integer} &= x + 1 \\ &= 11 + 1 \\ &= 12 \end{aligned}$$

$$\begin{aligned} \text{3rd integer} &= x + 2 \\ &= 11 + 2 \\ &= 13 \end{aligned}$$

$\therefore$ The three reqd. integers are 11, 12 and 13.

Q5: $\Rightarrow$ A number is multiplied by 3 and then 5 is added to it to get 20. What is the number?

Sol: $\Rightarrow$ let the number be x

Ac. to Q

$$3x + 5 = 20$$

$$\Rightarrow 3x = 20 - 5$$

$$\Rightarrow 3x = 15$$

$$\Rightarrow x = \frac{15}{3}$$

$$\Rightarrow x = 5$$

$\therefore$ The reqd. number is 5.

Q6: $\Rightarrow$ After buying a book Swjit is left with ₹5 out of his 50 rupee note. What is the cost of book?

Sol: $\Rightarrow$ let the cost of book be x

Ac. to Q

$$x + 5 = 50$$

$$\Rightarrow x = 50 - 5$$

$$\Rightarrow x = 45$$

$\therefore$ Cost of book is ₹45

Q7: $\Rightarrow$ If 10 less than a number is 24, what is this no.?

Sol: $\Rightarrow$ let the number be x .

Ac. to Q

$$x - 10 = 24$$

$$\Rightarrow x = 24 + 10$$

$$\Rightarrow x = 34$$

$\therefore$ The reqd. number is 34.

Q8:→ Amun's father is three times older than Amun. If the sum of their ages is 56 years. What are their ages?

Sol:→ let Amun's age be x .

Then Amun's father be $3x$.

Ac. to Q

$$x + 3x = 56$$

$$\Rightarrow 4x = 56$$

$$\Rightarrow x = \frac{56}{4} = 14$$

$$\Rightarrow x = 14$$

∴ Age of Amun is 14 years

Age of Amun's father = $3x$

$$= 3 \times 14$$

$$= 42 \text{ years.}$$

Q9:→ A house and a cart together cost ₹ 4600. If the cost of cart is one third of the cost of the house. What is the cost of house and cart?

Sol:→ let the cost of house be x .

Then the cost of cart be $\frac{1}{3}$ of $x = \frac{x}{3}$

Total amount of house and cart = ₹ 4600

Ac. to Q.

$$x + \frac{x}{3} = 4600$$

$$\Rightarrow \frac{x}{1} + \frac{x}{3} = 4600$$

$$\Rightarrow \frac{3x + x}{3} = 4600$$

$$\Rightarrow \frac{4x}{3} = 4600$$

$$\Rightarrow 4x = 4600 \times 3 \quad \text{— by cm}$$

$$\Rightarrow x = \frac{4600 \times 3}{4} = 1150 \times 3$$

$$\Rightarrow x = 3450$$

$$\Rightarrow x = 3450$$

∴ Cost of house = ₹ 3450

Cost of cart = $4600 - 3450$
 $= ₹ 1150$

Q1: Geeta has 18 metres of ribbon. She cuts it into two pieces in such a way that one piece is 4 metres longer than the other. Find the length of both pieces?

Sol: let the length of shorter piece be x .
Then, the length of longer piece be $(x+4)$
Total length of ribbon is 18m.
Ac. to Q.

$$x + (x+4) = 18$$

$$\Rightarrow x + x + 4 = 18$$

$$\Rightarrow 2x + 4 = 18$$

$$\Rightarrow 2x = 18 - 4$$

$$\Rightarrow 2x = 14$$

$$\Rightarrow x = \frac{14}{2}$$

$$\Rightarrow x = 7$$

$\therefore$ length of shorter piece = 7m
length of longer piece = $x+4$
= $7+4$
= 11m.

CHAPTER : INTEGERS

LESSON No: 01

Exercise No: 1.1

Q1: Arrange the following integers in descending order:

a) -11, -14, 8, 3, -9, 4

Sol:- 8, 4, 3, -9, -11, -14

b) -24, 24, 17, -7, 3, -1

Sol:- 24, 17, 3, -1, -7, -24

c) 20, -1, 0, 5, -13, 8

Sol:- 20, 8, 5, 0, -1, -13

Q2: Which temperature is higher:

a) 8°C or -18°C

b) -2°C or 0°C

Sol: 8°C is higher

Sol: 0°C is higher

Q3: Find the sum:

(10)

a) $3 + (-4)$

sol:- $3 + (-4)$

$\Rightarrow 3 - 4$

$\Rightarrow -1$

d) $(-25) + (-27)$

sol:- $(-25) + (-27)$

$\Rightarrow -25 - 27$

$\Rightarrow -52$

c) $-197 + 39$

sol:- $-197 + 39$

$\Rightarrow -158$

f) $19 + (-20) + (-37)$

sol:- $19 + (-20) + (-37)$

$\Rightarrow 19 - 20 - 37$

$\Rightarrow 19 - 57$

$\Rightarrow -38$

Q4: Find the difference:

a) $(-3) - (-30)$

sol:- $(-3) - (-30)$

$\Rightarrow -3 + 30$

$\Rightarrow 27$

d) $15 - (-2)$

sol:- $15 - (-2)$

$\Rightarrow 15 + 2$

$\Rightarrow 17$

c) $-37 - (-30)$

sol:- $-37 - (-30)$

$\Rightarrow -37 + 30$

$\Rightarrow -7$

f) $97 - (-31)$

sol:- $97 - (-31)$

$\Rightarrow 97 + 31$

$\Rightarrow 128$

Note: Do remaining parts of Q2, Q3 and Q4 by yourself.

Exercise No: 1.2

Q1: Write a pair of integers whose absolute value is 7.

sol:- -7 and $+7$ are the integers whose absolute value is 7.

Q2: Write $>$ or $<$ or $=$ in $\square$

a) $|-10| \square -2$

sol:- $|-10| \square -2$

$10 \square -2$

d) $19 \square |-91|$

sol:- $19 \square |-91|$

$\Rightarrow 19 \square +91$

c) $|-10| \square |10|$

sol:- $|-10| \square |10|$

$\Rightarrow 10 \square 10$

f) $10 \square |-13|$

sol:- $10 \square |-13|$

$\Rightarrow 0 \square +13$

Q3, Q4, Q5 → deleted

(11)

Q6 → on book

Q7: → If $\odot$ is an operation on integers such that for integers a and b , $a \odot b = a - b - (-1)$, then find

a) $3 \odot 7$

Sol: → $3 \odot 7$

Here $a = 3$

$b = 7$

$$\begin{aligned}\text{Using } a \odot b &= a - b - (-1) \\ 3 \odot 7 &= 3 - 7 - (-1) \\ &= 3 - 7 + 1 \\ &= 4 - 7 \\ &= -3\end{aligned}$$

d) $(-5) \odot (-10)$

Sol: → $(-5) \odot (-10)$

Here $a = -5$

$b = -10$

$$\begin{aligned}\text{Using } a \odot b &= a - b - (-1) \\ (-5) \odot (-10) &= -5 - (-10) - (-1) \\ &= -5 + 10 + 1 \\ &= -5 + 11 \\ &= 6\end{aligned}$$

Q8: → Find the Sum:

$$-2 + 2 + (-2) + 2 + (-2) \dots$$

a) If there are 73 terms

b) If there are 50 terms

Sol: → $-2 = -2 \rightarrow \text{odd}$

$-2 + 2 = 0 \rightarrow \text{even}$

$-2 + 2 - 2 = -2 \rightarrow \text{odd}$

$-2 + 2 - 2 + 2 = 0 \rightarrow \text{even}$

$-2 + 2 - 2 + 2 - 2 = -2 \rightarrow \text{odd} \dots$

for above conclusion we get that for every odd terms the sum will be -2 and for every even

term the sum will be zero (0).

∴ sum of 73 terms will be -2

& sum of 50 (even) terms will be 0.

Q9: → which of the following are true:

a) True

b) True

c) True

d) False

e) False.

[Note: → Do remaining parts of Q2 + Q7 by yourself]

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Exercise No: 1.3

Note $\Rightarrow$ If there are even number of negative's (-)
then the sign of product will be positive (+)
and if there are odd number of negative's (-)
then the sign of product will be negative (-).

Q1: $\Rightarrow$ Find the product:

a) $(-3) \times 7$

Sol: $\Rightarrow (-3) \times 7$
 $\Rightarrow -21$

c) $7 \times (-4)$

Sol: $\Rightarrow 7 \times (-4)$
 $\Rightarrow -28$

e) $0 \times (-10)$

Sol: $\Rightarrow 0 \times (-10)$
 $\Rightarrow 0$

g) $(-3) \times 4 \times 7$

Sol: $\Rightarrow (-3) \times 4 \times 7$
 $\Rightarrow (-3) \times 28$
 $\Rightarrow -84$

i) $(-5) \times (-7) \times (-10)$

Sol: $\Rightarrow (-5) \times (-7) \times (-10)$
 $\Rightarrow (-5) \times 70$
 $\Rightarrow -350$

Q2: $\Rightarrow$ Find:

a) $(-9) \times (-5) \times (-6) \times (-3)$

Sol: $\Rightarrow (-9) \times (-5) \times (-6) \times (-3)$
 $\Rightarrow 45 \times 18$
 $\Rightarrow 810$

b) $(-9) \times (-5) \times 6 \times (-3)$

Sol: $\Rightarrow (-9) \times (-5) \times 6 \times (-3)$
 $\Rightarrow 45 \times -18$
 $\Rightarrow -810$

Q3: $\Rightarrow$ What will be the product, if we multiply?

a) -1 , twelve times

Sol: $\Rightarrow (-1)^{12}$ — even
 $\Rightarrow +1$

c) 1 , nine times

Sol: $\Rightarrow (1)^9 \Rightarrow +1$

b) -1 , twenty five times

Sol: $\Rightarrow (-1)^{25}$ — odd

$\Rightarrow -1$

d) 1 , twenty times

Sol: $\Rightarrow (1)^{20} \Rightarrow +1$

Q4: → what will be product if The following integer is⁽¹³⁾ multiplied by -1?

a) 16

Sol: → 16×-1
 $\Rightarrow -16$

b) -7

Sol: → -7×-1
 $\Rightarrow +7$

c) 0×-1

Sol: → 0×-1
 $\Rightarrow 0$

d) -18

Sol: → -18×-1
 $\Rightarrow +18$

e) 37

Sol: → 37×-1
 $\Rightarrow -37$

Q5: → Find all possible integers a for which $a \times a = a$

Sol: → we have
 $a \times a = a$

put $a = 0, 1, -1, -2 \dots$

$0 \times 0 = 0$

$1 \times 1 = 1$

$-1 \times -1 = 1$

$-2 \times -2 = 4$

from above conclusion we get that only 0, 1 & -1

satisfy the given condition.

∴ possible integers are 0, 1 and -1.

Q6: → State whether The following statements are true/false

a) $(-2) \times (-1) < 2$

Sol: → $(-2) \times (-1) < 2$
 $\Rightarrow 2 < 2$
 $\Rightarrow \text{false}$

b) $(-4 \times 0) > 0$

Sol: → $(-4 \times 0) > 0$
 $\Rightarrow 0 > 0$
 $\Rightarrow \text{false}$

c) $(-2) \times 3 > -6$

Sol: → $(-2) \times 3 > -6$
 $\Rightarrow -6 > -6$
 $\Rightarrow \text{false}$

d) $0 \times (-5) = 0$

Sol: → $0 \times (-5) = 0$
 $\Rightarrow 0 = 0$
 $\Rightarrow \text{True}$

e) $(-3) \times (-4) > 0$

Sol: → $(-3) \times (-4) > 0$
 $\Rightarrow 12 > 0$
 $\Rightarrow \text{True}$

f) $(-7) \times 0 \times 2 < 0$

Sol: → $(-7) \times 0 \times 2 < 0$
 $\Rightarrow 0 < 0$
 $\Rightarrow \text{false}$

Q7) Determine the sign of the product, when we multiply together:

a) 11 negatives and 5 positive integers.

Sol: $\rightarrow$ negative sign $\rightarrow [\because 11 \text{ is odd}]$

b) 8 negatives and 7 positive integers.

Sol: $\rightarrow$ positive sign $\rightarrow [\because 8 \text{ is even}]$

c) 34 negatives and 10 positive integers.

Sol: $\rightarrow$ positive sign $\rightarrow [\because 34 \text{ is even}]$

Q8: $\rightarrow$ find a , if:

a) $a \times (-1) = 27$

Sol: $\rightarrow a \times (-1) = 27$

$$\Rightarrow a = \frac{27}{-1}$$

$$\Rightarrow a = -27$$

b) $(-1) \times a = -27$

Sol: $\rightarrow (-1) \times a = -27$

$$\Rightarrow a = \frac{-27}{-1}$$

$$\Rightarrow a = 27$$

Exercise No: 1.4

Q1: $\rightarrow$ find:

a) $(-80) \div 5$

Sol: $\rightarrow 5 \overline{) 80} 16$

$$\begin{array}{r} 5 \\ \underline{30} \\ 30 \\ \underline{x} \end{array}$$

$$\Rightarrow (-80) \div 5 = -16$$

e) $24 \div (-6)$

Sol: $\rightarrow 6 \overline{) 24} 4$

$$\begin{array}{r} 24 \\ \underline{x} \end{array}$$

$$\Rightarrow 24 \div (-6) = -4$$

c) $(-72) \div 9$

Sol: $\rightarrow 9 \overline{) 72} 8$

$$\begin{array}{r} 72 \\ \underline{x} \end{array}$$

$$\Rightarrow (-72) \div 9 = -8$$

g) $(-24) \div (-4)$

Sol: $\rightarrow 4 \overline{) 24} 6$

$$\begin{array}{r} 24 \\ \underline{x} \end{array}$$

$$\Rightarrow (-24) \div (-4) = 6$$

$$J) (-64) \div (-4)$$

$$\text{Sol:} \rightarrow \begin{array}{r} 4 \overline{) 64} 16 \\ \underline{4} \\ 24 \\ \underline{24} \\ 0 \end{array}$$

$$\Rightarrow (-64) \div (-4) = 16$$

$$K) 0 \div 7$$

$$\text{Sol:} \rightarrow 0$$

$$L) 0 \div (-1)$$

$$\text{Sol:} \rightarrow 0$$

[Do remaining parts by yourself.]

Q2: $\rightarrow$ Which of the following give a positive sign:

$$a) 15 \div (-5)$$

Sol: $\rightarrow$ Negative sign

$$b) 0 \div (-5)$$

Sol: $\rightarrow$ No sign

$$c) (-14) \div (-2)$$

Sol: $\rightarrow$ positive sign

$$f) (-1) \div 1$$

Sol: $\rightarrow$ Negative sign

$$g) (-6) \div (-2)$$

Sol: $\rightarrow$ positive sign

$$h) 0 \div 5$$

Sol: $\rightarrow$ No sign

Q3: $\rightarrow$ If a is a negative integer, find the quotient of

$$|a| \div a$$

Sol: $\rightarrow$ we have

$$\Rightarrow |a| \div a$$

a is a negative integer.

$$\text{Then, } |-a| \div (-a)$$

$$\Rightarrow a \div (-a)$$

$$\Rightarrow \frac{a}{-a}$$

$$\Rightarrow -1$$

Note: $\rightarrow$ 1) When 0 (zero) is divided by any integer the result will be zero.

2) When 0 (zero) is multiplied by any integer the result will be zero.

Exercise No: 1.5

(16)

Q1: Find the product:

a) $(-7) \times 0$

Sol: $(-7) \times 0$

$\Rightarrow 0$

b) $13 \times (-1)$

Sol: $13 \times (-1)$

$\Rightarrow -13$

c) $(-1) \times 27$

Sol: $(-1) \times 27$

$\Rightarrow -27$

d) $37 \times (-1)$

Sol: $37 \times (-1)$

$\Rightarrow -37$

e) $(-36) \times (-1)$

Sol: $(-36) \times (-1)$

$\Rightarrow 36$

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

Sol: $(-15) \times 0 \times 18$

$\Rightarrow 0$

g) $(-3) \times (-6) \times (-1)$

Sol: $(-3) \times (-6) \times (-1)$

$\Rightarrow (-3) \times 6$

$\Rightarrow -18$

Q2: On book.

Q3: Determine the integer whose product with -1 is -26 .

Sol: Let the integer be x .

Ac. to Q

$$x \times -1 = -26$$

$$x = \frac{-26}{-1}$$

$$x = 26$$

$\therefore$ The reqd. integer is 26 .

Q4: Write the value of a for which $a \times 7 = -7$

Sol: we have

$$a \times 7 = -7$$

$$\Rightarrow a = \frac{-7}{7}$$

$$\Rightarrow a = -1$$

Q5: Starting from $(-1) \times 4$, write various products showing some patterns to show $(-1) \times (-1) = 1$

Sol: $(-1) \times 4 = -4$

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

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

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

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

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

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Q6:→ Find the product using suitable properties:

a) $7 \times (40 - 3)$

sol:→ $7 \times (40 - 3)$

⇒ $7 \times 40 - 7 \times 3 \rightarrow [DP \text{ over Sub.}]$

⇒ $280 - 21$

= 259

b) $(-39) \times 110$

sol:→ $(-39) \times [100 + 10]$

⇒ $(-39) \times 100 + (-39) \times 10$

⇒ $-3900 - 390$

⇒ -4290

c) $15 \times (-25) \times (-4) \times (-20)$

sol:→ $(-25) \times (-4) \times 15 \times (-20)$

⇒ 100×-300

⇒ -30000

d) $8 \times 37 \times (-25)$

sol:→ $8 \times (-25) \times 37$

⇒ -200×37

⇒ -7400

e) $26 \times (-43) + (-43) \times (-36)$

sol:→ $26 \times (-43) + (-43) \times (-36)$

⇒ $(-43) \times [26 + (-36)]$

⇒ $(-43) \times [26 - 36]$

⇒ $(-43) \times (-10)$

⇒ 430

→ [DP over addition]

Q7:→ Find:

a) $778 \times 1562 + 778 \times (-562)$

sol:→ $778 \times 1562 + 778 \times (-562)$

⇒ $778 \times [1562 + (-562)]$

⇒ $778 \times [1562 - 562]$

⇒ 778×1000

⇒ 778000

→ [DP over addition]

b) $4903 \times 99 - (-4903)$

sol:→ $4903 \times 99 - (-4903) \times 1$

⇒ $4903 \times 99 + (4903) \times 1$

⇒ $4903 \times [99 + 1]$

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$$\Rightarrow 4903 \times 100$$

$$\Rightarrow 490300$$

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Q8: $\Rightarrow$ verify the property: $a \times (b \times c) = (a \times b) \times c$
for $a = -3$, $b = 7$, $c = -9$

Sol: $\Rightarrow a \times (b \times c) = (a \times b) \times c$

Taking LHS

$$a \times (b \times c)$$

$$\Rightarrow (-3) \times [7 \times (-9)]$$

$$\Rightarrow (-3) \times (-63)$$

$$\Rightarrow 189$$

$$\Rightarrow \text{LHS} = \text{RHS}$$

Hence proved.

Taking RHS

$$(a \times b) \times c$$

$$\Rightarrow [(-3) \times 7] \times (-9)$$

$$\Rightarrow (-21) \times (-9)$$

$$\Rightarrow 189$$

Q9: $\Rightarrow$ verify the property:

a) $a \times (b + c) = (a \times b) + (a \times c)$

for $a = -7$, $b = 3$, $c = -1$

Sol: $\Rightarrow a \times (b + c) = (a \times b) + (a \times c)$

Taking LHS

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

$$\Rightarrow (-7) \times [3 + (-1)]$$

$$\Rightarrow (-7) \times [3 - 1]$$

$$\Rightarrow (-7) \times (2)$$

$$\Rightarrow -14$$

$$\Rightarrow \text{LHS} = \text{RHS}$$

Hence verified.

Taking RHS

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

$$\Rightarrow [(-7) \times 3] + [(-7) \times (-1)]$$

$$\Rightarrow (-21) + (7)$$

$$\Rightarrow -21 + 7$$

$$\Rightarrow -14$$

b) $(b - c) \times a = (b \times a) - (c \times a)$

for $a = -7$, $b = 3$, $c = -1$

Sol: $\Rightarrow (b - c) \times a = (b \times a) - (c \times a)$

Taking LHS

Taking RHS

$$\begin{aligned}
 & (b-c) \times a \\
 \Rightarrow & [3 - (-1)] \times (-7) \\
 \Rightarrow & [3 + 1] \times (-7) \\
 \Rightarrow & (4) \times (-7) \\
 \Rightarrow & -28
 \end{aligned}$$

$$\begin{aligned}
 & (b \times a) - (c \times a) \quad (19) \\
 \Rightarrow & [3 \times (-7)] - [(-1) \times (-7)] \\
 \Rightarrow & (-21) - (7) \\
 \Rightarrow & -21 - 7 \\
 \Rightarrow & -28
 \end{aligned}$$

$\Rightarrow$ LHS = RHS
 Hence verified.

Q10: $\rightarrow$ which one is greater:

a) $(7+9) \times 11$ or $7 + (9 \times 11)$

Sol: $\rightarrow (7+9) \times 11$ or $7 + (9 \times 11)$
 $\Rightarrow 16 \times 11$ $\Rightarrow 7 + 99$
 $\Rightarrow 176$ $\Rightarrow 106$

$\Rightarrow (7+9) \times 11 > 7 + (9 \times 11)$
 c) $(-3) - [7 \times (-9)]$ or $[(-3) - 7] \times (-9)$
 or $[-3 - 7] \times (-9)$

Sol: $\rightarrow (-3) - [7 \times (-9)]$ or $[-3 - 7] \times (-9)$
 $\Rightarrow (-3) - [-63]$ $\Rightarrow (-10) \times (-9)$
 $\Rightarrow (-3) + 63$ $\Rightarrow 90$
 $\Rightarrow 60$

$\Rightarrow (-3) - [7 \times (-9)] < [(-3) - 7] \times (-9)$

Q11: $\rightarrow$ which of the following are true?

a) True b) True c) false d) false e) True f) True

Q12: $\rightarrow$ Simplify:

Sol: $\rightarrow [(-2) \times 17 + 2 \times (-16) + 6] \div (-15)$

$\Rightarrow [(-34) + (-32) + 6] \div (-15)$

$\Rightarrow [-34 - 32 + 6] \div (-15)$

$\Rightarrow [-66 + 6] \div (-15)$

$\Rightarrow (-60) \div (-15)$

$\Rightarrow 4$

$$\begin{array}{r}
 15 \overline{) 60} 4 \\
 \underline{60} \\
 0 \\
 \times
 \end{array}$$

Simplify:

1) $32 - \{16 - (9 - 3 - 4)\}$

Sol: $\rightarrow 32 - \{16 - (9 - 3 - 4)\}$

$\Rightarrow 32 - \{16 - (9 - 7)\}$

$\Rightarrow 32 - \{16 - 2\}$

$\Rightarrow 32 - 14$

$\Rightarrow 18$

2) $48 \div [4 + \{12 \times (5 - 4)\}]$

Sol: $\rightarrow 48 \div [4 + \{12 \times (5 - 4)\}]$

$\Rightarrow 48 \div [4 + \{12 \times 1\}]$

$\Rightarrow 48 \div [4 + 12]$

$\Rightarrow 48 \div 16$

$\Rightarrow 3$

$$\begin{array}{r} 16 \overline{) 48} 3 \\ \underline{48} \\ x \end{array}$$

3) $12 - 3[5 + 3\{(7 - 9) - 2\}]$

Sol: $\rightarrow 12 - 3[5 + 3\{(7 - 9) - 2\}]$

$\Rightarrow 12 - 3[5 + 3\{(-2) - 2\}]$

$\Rightarrow 12 - 3[5 + 3\{-2 - 2\}]$

$\Rightarrow 12 - 3[5 + 3(-4)]$

$\Rightarrow 12 - 3[5 - 12]$

$\Rightarrow 12 - 3[-7]$

$\Rightarrow 12 + 21$

$\Rightarrow 33$

4) $18 + [29 - \{(-7) \times 8(11 - 2 \times 5)\}]$

Sol: $\rightarrow 18 + [29 - \{(-7) \times 8(11 - 2 \times 5)\}]$

$\Rightarrow 18 + [29 - \{(-7) \times 8(11 - 10)\}]$

$$18 + [29 - \{-(-7) \times 8(1)\}]$$

$$\Rightarrow 18 + [29 - \{-(-7) \times 8\}]$$

$$\Rightarrow 18 + [29 - \{-56\}]$$

$$\Rightarrow 18 + [29 + 56]$$

$$\Rightarrow 18 + 85$$

$$\Rightarrow 103$$

$$5) 4 [30 \div \{10 + 6 + (7-8)\}]$$

$$\text{Sol:} \Rightarrow 4 [30 \div \{10 + 6 + (7-8)\}]$$

$$\Rightarrow 4 [30 \div \{10 + 6 + (-1)\}]$$

$$\Rightarrow 4 [30 \div \{10 + 6 - 1\}]$$

$$\Rightarrow 4 [30 \div \{16 - 1\}]$$

$$\Rightarrow 4 [30 \div 15]$$

$$\Rightarrow 4 (2)$$

$$\Rightarrow 8$$

$$6) 73 - \{65 \times 2 - (14 - 5 - 8)\}$$

$$\text{Sol:} \Rightarrow 73 - \{65 \times 2 - (14 - 5 - 8)\}$$

$$\Rightarrow 73 - \{130 - (14 - 13)\}$$

$$\Rightarrow 73 - \{130 - 1\}$$

$$\Rightarrow 73 - 129$$

$$\Rightarrow -56$$

$$7) 81 + [59 - \{7 \times 8 + (13 - 2 \times 5)\}]$$

$$\text{Sol:} \Rightarrow 81 + [59 - \{7 \times 8 + (13 - 2 \times 5)\}]$$

$$\Rightarrow 81 + [59 - \{56 + (13 - 10)\}]$$

$$\Rightarrow 81 + [59 - \{56 + 3\}]$$

$$\Rightarrow 81 + [59 - \{59\}]$$

$$\Rightarrow 81 + [59 - 59]$$

$$\Rightarrow 81 + 0$$

$$\Rightarrow 81$$

$$8) 18 - 6 \div 2 + [(-5) \times (-4) - \{3 - (3-5)\}]$$

$$\text{Sol:} \Rightarrow 18 - 6 \div 2 + [(-5) \times (-4) - \{3 - (3-5)\}]$$

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$$15 \overline{) 30} 2$$

$$\begin{array}{r} 15 \overline{) 30} 2 \\ \underline{30} \\ x \end{array}$$

$$\Rightarrow 18 - 3 + [20 - \{3 - (-2)\}]$$

$$\Rightarrow 18 - 3 + [20 - \{3 + 2\}]$$

$$\Rightarrow 18 - 3 + [20 - \{5\}]$$

$$\Rightarrow 18 - 3 + [20 - 5]$$

$$\Rightarrow 18 - 3 + 15$$

$$\Rightarrow 15 + 15$$

$$\Rightarrow 30.$$

$$Q9: \Rightarrow 118 - [121 \div (11 \times 11) - (-4) - \{3 - 9 - 2\}]$$

$$Sol: \Rightarrow 118 - [121 \div (11 \times 11) - (-4) - \{3 - 9 - 2\}]$$

$$\Rightarrow 118 - [121 \div 121 + 4 - \{3 - 11\}]$$

$$\Rightarrow 118 - [1 + 4 - (-8)]$$

$$\Rightarrow 118 - [1 + 4 + 8]$$

$$\Rightarrow 118 - 13$$

$$\Rightarrow 105.$$

$$Q10: \Rightarrow (-15) + 8 \div (-2) - 3[4 - \{(-3) \times (-7) - 3 + 5\}]$$

$$Sol: \Rightarrow (-15) + 8 \div (-2) - 3[4 - \{(-3) \times (-7) - 3 + 5\}]$$

$$\Rightarrow (-15) - 4 - 3[4 - \{+21 - 3 + 5\}]$$

$$\Rightarrow (-15) - 4 - 3[4 - \{26 - 3\}]$$

$$\Rightarrow (-15) - 4 - 3[4 - 23]$$

$$\Rightarrow (-15) - 4 - 3(-19)$$

$$\Rightarrow (-15) - 4 + 57$$

$$\Rightarrow -15 - 4 + 57$$

$$\Rightarrow -19 + 57$$

$$\Rightarrow 38.$$

$$\Rightarrow$$

Unit-I Thoroughly for exam.