INTEGERS

Problem solving on Properties of Multiplication of Integers

SUBJECT : MATHEMATICS
CHAPTER NUMBER: 01
CHAPTER NAME : INTEGERS

Learning outcome

Students will be able
- to calculate multiplication involving bigger integers.

- to simplify a series of arithmetic operations on integers quickly

Previous knowledge test

- Properties of multiplication of integers

RECAP

ODM
EDUCATIONAL GROUP
Changing your Tomorrow

7. Determine the integer whose product with '-1' is:
(i) -47
(ii) 63
(iii) -1
(iv) 0

Solution:
(i) -47 = – 1 × 47
Therefore, the integer is 47.
(ii) 63 = – 1 × – 63
Therefore, the integer is – 63.
(iii) -1 = – 1 × 1
Therefore, the integer is 1.
(iv) 0 = -1 × 0
Therefore, the integer is 0.

8. Eighteen integers are multiplied together. What will be the sign of their product, if:
(i) 15 of them are negative and 3 are positive?

(ii) 12 of them are negative and 6 are positive?

(iii) 9 of them are positive and the remaining are negative?

(iv) all are negative?

Solution:
(i) Out of 18 integers, 15 of them are negative which is odd number. Therefore, the sign of product is negative.

(ii) Out of 18 integers, 12 of them are negative which is even number. Therefore, the sign of product is positive.

(iii) Out of 18 integers, 9 of them are negative which is odd number. Therefore, the sign of product is negative.

(iv) All are negative which is even number. Therefore, sign of product is positive.

9. Find which is greater?

(i)   (8 + 10) × 15 or 8 + 10 × 15

(ii) 12 × (6 – 8) or 12 × 6 – 8

(iii) {(-3) – 4} × (-5) or (-3) – 4 × (-5)

Solution:
(i) (8 + 10) × 15 or 8 + 10 × 15
We know that
(8 + 10) × 15 = 18 × 15 = 270
8 + 10 × 15 = 8 + 150 = 158
Therefore, (8 + 10) × 15 > 8 + 10 × 15.

(ii) 12 × (6 – 8) or 12 × 6 – 8
We know that
12 × (6 – 8) = 12 (-2) = – 24
12 × 6 – 8 = 72 – 8 = 64
Therefore, 12 × (6 – 8) < 12 × 6 – 8.

(iii) {(-3) – 4} × (-5) or (-3) – 4 × (-5)
We know that
{(-3) – 4} × (-5) = {- 3 – 4} × (-5)
= – 7 × -5 = 35
Similarly
(-3) – 4 × (-5) = – 3 + 20 = 17
Therefore, {(-3) – 4} × (-5) > (-3) – 4 × (-5)

12. Find the result of subtracting the sum of all integers between 20 and 30 from the sum of all integers from 20 to 30.
Solution:

Here the required number = sum of all integers from 20 to 30 – sum of all integers between 20 and 30

Substituting the values

= (20 + 21 + 22 + 23 + 24 + 25 + 26 + 27 + 28 + 29 + 30) – (21 + 22 + 23 + 24 + 25 + 26 + 27 + 28 + 29)

On further calculation

= 20 + 30 = 50
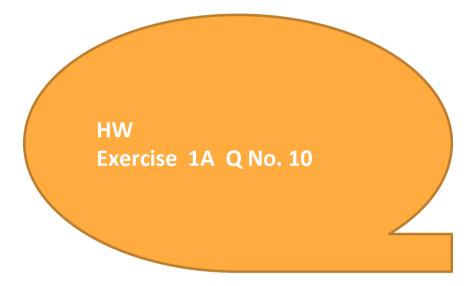
Hence, the required number is 50.

15. (i) A number changes from – 20 to 30. What is the increase or decrease in the number?
(ii) A number changes from 40 to – 30. What is the increase or decrease in the number?
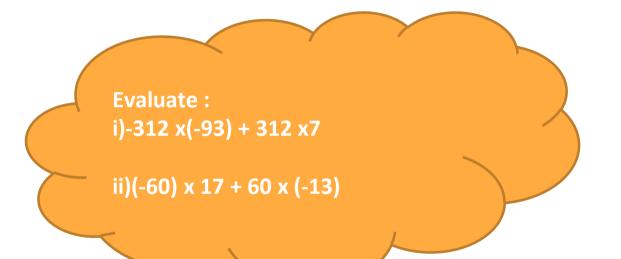
Solution:
(i) A number changes from – 20 to 30
Hence, 50 will be the increase in the number.

(ii) A number changes from 40 to – 30
It can be written as
40 – (-30) = 40 + 30 = 70
Hence, 70 will be the decrease in the number

HW
Exercise 1A Q No. 10

Evaluate :
i)-312 x(-93) + 312 x7

ii)(-60) x 17 + 60 x (-13)

THANKING YOU
ODM EDUCATIONAL GROUP