CLASS 7

MATHEMATICS

CHAPTER-1   INTEGERS

INTEGERS:

- All natural numbers, 0 and negatives of counting numbers are called integers.
- Positive Integers : 1, 2, 3, 4 etc. are called positive integers.
- Negative Integers: -1, -2, -3 etc. are negative integers.
- Zero is an integer which is neither positive nor negative.

Addition of Integers

Rule 1:

- If two positive or two negative integers are added, we add their values regardless of their signs and give the sum their common sign.

Rule 2:

- To add a positive and a negative integer, we find the difference between their numerical values regardless of their signs and give the sign of the integer with the greater value to it

Properties of addition on integers

(i)   Closure property of addition: The sum of two integers is always an integer.

(ii)   Commutative property of addition: If a and b are any two integer then
(a+b) = (b+a).

Eg- (-4)+9 = 5 and 9 + (-4) = 5

(iii)   Associative property of addition: If a, b ,c are three integers then
(a+b) + c = a + (b + c)
Eg- Consider the integers (-6), (-8) & 5
Then [(-6) +(-8)] + 5 = (-6) + [(-8) + 5] = -9

Additive Identity

- For any integer a , we have (a+0) = (0+a) = a.
- '0' is called additive identity for integers.

Additive Inverse

- For any integer a, we have [a+(-a)] = 0.
- Additive inverse of 'a ' is (-a).
- Similarly Additive inverse of (-a) is 'a'.

Subtraction of integers

- For any integer a and b, (a-b) = a + (-b).

Properties of Subtraction

(i) Closure Property: If a and b are any two integers, then (a - b) is always an integer.

(ii) Subtraction of integers is not Commutative.

(iii) Subtraction of integers is not Associative.

WORSHEET BASED ON CLASS VI SYLLABUS

1. 2 subtracted from 7 gives
   (a) – 9   (b) 5   (c) - 5   (d) 9

2. 5 added to – 5 gives
   (a) 10   (b) - 10   (c) 0   (d) - 25

3. 3 taken away from 0 gives
   (a) 3   (b) - 3   (c) 0   (d) not possible

4. Smallest integer is
   (a) 0   (b) - 1   (c) we cannot write   (d) – 10000

5. Which of the following statement is true:
   (a) 2 subtracted from – 3 gives 1   (b) – 1 subtracted from – 5 gives 6
   (c) 3 subtracted from – 8 gives – 11   (d) 1 subtracted from – 7 gives – 6

6. Absolute value of - 11 is
   (a) 10   (b) – 1   (c) 11   (d) – 11

7. The number 3 less than – 2 is
   (a) – 1   (b) 1   (c) 5   (d) – 5

8. Which of the following numbers is to the right of -3 on number line ?
   (a) -4   (b) -2   (c) -5   (d) -6

9. Which of the following number is not to the left of -10 on the number line ?
   (a) -9   (b) - 11   (c) -12   (d) -13

10. The number of integers between -2 and 2 is-
    (a) 5   (b) 4   (c) 3   (d) 2

11. Write the following numbers with appropriate signs:

  (a) 100m above sea level.

  (b) 25°C above 0°C temperature.

  (c) Withdrawal of Rs 700.

  (d) Any five numbers less than 0.

12. Represent the following numbers on the number line

   a. (+5)   b. (-10)   c. (+8)   d.(-6)

13. Find the solution of the following.

  (a) (-11) + (-12)

  (b) (-32) + (-25)

  (c) 23 + (-40)

  (d) (-7) – 8 – (-25)

  (e) 50 – (-40) –(-2)

14. Fill in the blanks with < , >, or = sign.

  (a) (-3) + (-6) _____ (-3) – (-6)

  (b) (-21) – (-10) _____ (-31) + (-11)

  (c) 45 – (-11) _____ 57 + (-4)

  (d) (-25) – (-42) _____(-42) – (-25)

15. Arrange the following in the ascending order: -2 , 1 , 0, -3, +4, -5.

16. The sum of two integers is 30. If one of the integers is -42, then find the other.

17. Write five integers which are less than -100 but greater than -150.

18. Subtract the sum of -1032 and 878 from -34.

19. Subtract -134 from the sum of 38 and -87.

20. Find the additive inverse of :

  (a) -83   (b) 256

Note: (Do it on any available copy or sheet of paper.)

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CLASS –VII (REVISION WORKSHEET :-2020-21)

(For CLASS –VIII STUDENTS)

Q1:- Solve the equation:-

1) 7a +13=4a + 43

2) 7y +10= −60−2y

3) 2m=−10

4) 3(5t −2) −4t=16

5)$\frac{3}{4}$ k =27

6) 7(2m −1) = 3(4m+8) +4

Q2:- Do as directed:-

1) Find 5% of 1 hour

2) 30% of 1 km

3) Change 0.04 into percentage

4) Find the amount to be paid at the end of 2 years on a sum of ₹1200 at

   10%p.a

5) Find the rate of interest when P= ₹ 500 ; T=4 years ; I=₹100

6) What is the ratio of 2.5 litres and 250 ml ?

7) Find the profit percent when C.P.=₹130 and S.P.=₹180

Q3:-Do as directed:-

1) Find the area of a parallelogram with base of 13cm and a height of

   5 cm

2)Find the altitude of a triangular region whose base is 28m and area

is 224 m^2

3) The circumference of a circle is 264cm. Find its area

4) Find the area of a circle with diameter 28cm

Q4:- Do as directed:-

1) Find the sum of $a^2-7ab+b^2$ and $8ab-7b^2-3a^2$

2) Add: 5t−2s +7y ; −2t +7s +2y; 5t−7s+5y

3) Subtract 3x -5y +2z from x -4y -7z

 4) Find the difference: (a+ b+2c) −(a-6b-3c)

Q5:-Do as directed :

 1) Solve :$3^{12}\div3^5$

 2) Solve : $4^7\times 4^6$

 3) Write in exponential form:-a) $\dfrac{121}{289}$ b) $\dfrac{625}{81}$ c) $\dfrac{2a}{3}\times\dfrac{2a}{3}\times\dfrac{2a}{3}\times\dfrac{2a}{3}$

4) What is the value of $4^0+ 6^0+7^0$

Q6:- Solve the following:-

1) $\dfrac{-7}{8}-\dfrac{3}{4}$

2) $\dfrac{-3}{10}+\dfrac{7}{15}$

3) $\dfrac{3}{7}+(\dfrac{-5}{14})+\dfrac{1}{2}$

4) Find the product of $\dfrac{-5}{7}$ and its reciprocal

5) Find the value of $\dfrac{3}{4}\times\dfrac{12}{15}\times\dfrac{5}{8}$

6) Find the value of $16\div\dfrac{-8}{3}$

7) Find the value of $(\dfrac{2}{3}\div\dfrac{8}{9})\times\dfrac{3}{5}$

SQUARE AND SQUARE ROOTS

1) Any number multiplied by itself, the product thus formed is called the square of the number.

Eg:- 2x2=4   4x4=16

(-2)x(-2)= 4   (-4)x(-4)= 16

2) For variables:-

Eg:- axa=a^2 txt=t^2

(-a)x(-a)=a^2 (-t)x(-t)=t^2

3) Not all natural numbers are squares.

4) Square of any number is always positive.

How to identify those numbers which can be possibly square numbers?

* A natural number having 2,3,7 or 8 at the ones place can never be squares.

eg:- 432,138,117 can never be a square.

* If the number of zeros at the end is even, then the number may be a square.

eg:- 400,10000 or 900 may be square numbers.

* If the number of zeros at the end is odd, then the number can never be a square number.

eg:- 10,2000, 400000 can never be square numbers.

Some more properties of square numbers

* Square of an even number is always even:-

$(4)^2$= 16; where both 4 and 16 are even.

$(6)^2$= 36; where both 6 and 36 are even.

$(8)^2$= 64; where both 8 and 64 are even.

* Square of an odd number is always odd.

$(9)^2$= 81; where both 9 and 81 are odd.

$(15)^2$= 225; where both 15 and 225 are odd.

$(7)^2$=49; where both 7 and 49 are odd.

Squares of first 30 numbers are:-

NUMBER	SQUARE	NUMBER	SQUARE	NUMBER	SQUARE
1	1	11	121	21	441
2	4	12	144	22	484
3	9	13	169	23	529
4	16	14	196	24	576
5	25	15	225	25	625
6	36	16	256	26	676
7	49	17	289	27	729
8	64	18	324	28	784
9	81	19	361	29	841
10	100	20	400	30	900

* Learn them as they are very helpful in mathematical calculations.

Q1:- What is the square of the following numbers:-

1) 18   2) 27   3) 13   4) 19   5) 21

Q2:- Which of the following are squares of even numbers:-

1) 324   2) 1441   3) 1765   4) 2304   5) 883

Q3:- Which of the following may be a square of any natural number:-

1) 841   2) 16000   3) 2500   4) 1936   5) 146

Q4: Solve the following:

1) 11^2+14^2 2) $16^2 - 14^2$