THE VILLAGE
INTERNATIONAL SCHOOL
"We Nurture Dreams"

AIM HIGH, TOGETHER WE FLY

**GRADE -8**          **Work sheet - MATHEMATICS**          2024-'25

**CHAPTER -16**                    **POWERS**

Name :…………………………….                              Date:………………..

1) $(x^m)^n$ is expressed as
   a)$x^{m+n}$              b)$x^{mn}$              c)$x^{m-n}$              d)$x^{m \div n}$

2)$\left(\frac{x}{y}\right)^m$ is expressed as

   a)$(x-y)^m$              b)$(x+y)^m$              c)$x^m X y^{-m}$              d)all are incorrect

3) What is the value of $\left(\frac{1}{2}\right)^{-2}$
   a)$\frac{1}{-4}$              b)$\frac{1}{4}$              c)-4              d)4

4)What is the value of $2^0 + 7^0 \times 10^0$
   a)72              b)9              c)1              d)2

5)$(2^{-1} + 3^{-1} + 4^{-1})^0$ equals to
   a)2+3+4              b)1+1+1              c)$\frac{1}{2}+\frac{1}{3}+\frac{1}{4}$              d)1

6) In $5^n$ , n is known as
   a) base              b) exponent              c)constant              d)number

7) The standard form for 0.000064
   a)$64 \times 10^4$              b) $64 \times 10^{-4}$              c) $6.4 \times 10^{-5}$              d) $6.4 \times 10^5$

8) What is the value of $4.05 \times 10^6$ in usual form ?
   a)40500              b)405000              c)0.0000045              d)4050000

9) What is value of $(2 \times 3)^2$?
   a)12              b)18              c)36              d)8

10) What is value of $\left(\frac{1}{10}\right)^0$
   a)1              b)10              c)0              d)$\frac{1}{10}$

**I Fill in the blanks :**

11. $\left(\frac{-7}{5}\right)^{-1}$ is equal to ____

12. $(-1)^{103}$ = _____

13. The multiplicative inverse of$\left(\frac{-5}{3}\right)^{-99}$ is ____

14. The standard form of 0.000064 is ____

15. The value of $\left(\frac{-5}{7}\right)^3 \times (7)^3$ = ___

16. $\frac{1}{25}$ expressed as power of 5 is ___

17. $10^8 \times 10^{-10} =$ ___

18. The value of $\left(\frac{3}{2}\right)^{-2}$ is ___

19. $7 \times 10^{-6}$ ___ $129 \times 10^{-7}$ ($<$ or $>$)

20. $5^0 + 6^0 =$

II Short answer type questions :

6. simplify: $\left[\frac{1}{4}\right]^{-2} + \left[\frac{1}{2}\right]^{-2} + \left[\frac{1}{3}\right]^{-2}$

7. Find the value of m for which $2^m \div 2^{-2} = 2^5$

8. Simplify : $5^{-7} \div 5^{-10} \times 5^{-5}$

9. Evaluate : $\left\{\left(\frac{1}{3}\right)^{-1} - \left(\frac{1}{4}\right)^{-1}\right\}^2$

10. Express following in usual form : a) $7.5 \times 10^4$ ,b) $2.3 \times 10^{-3}$

Very short answers questions

1. Find the value of $\left(\frac{-2}{5}\right)^{-2}$

2. Find the Cube of $\left(\frac{-1}{2}\right)$

3. Find the standard form of 0.00007.

4. Find usual form of $3.06 \times 10^4$

5. Find multiplicative inverse of $\left(\frac{-3}{5}\right)^{57}$

## SHORT ANSWER TYPE QUESTIONS

1) Simplify : $3^{-7} \div 3^{-10} \times 3^{-5}$
2) Find the value of : $(3^0 + 4^{-1}) \times 2^2$
3) Find the value of : $(3^{-1} \times 4^{-1}) \div 2^{-2}$
4) Evaluate : $\frac{8^{-1} \times 5^3}{2^{-4}}$

5) Find m so that $(-3)^{m+1} \times (-3)^5 = (-3)^7$
6) Simplify and express in exponential form : $(2^5 + 2^8)^5 \times 2^{-5}$

7) Evaluate : $\left\{\left(\frac{1}{3}\right)^{-1} - \left(\frac{1}{4}\right)^{-1}\right\}^{-1}$

8) Express following in usual form : a) $4.5 \times 10^4$ ,b) $3 \times 10^{-3}$
9) Express in standard form : a) 3080000 , b) 0.00067

10) Simplify and express in exponential form : $(-3)^4 \times \left(\frac{5}{3}\right)^4$

## LONG ANSWER TYPE QUESTIONS

1) Simplify : $\dfrac{25 \times t^{-4}}{5^{-3} \times 10^1 \times t^{-8}}$

2) Simplify : $\dfrac{3^{-5} \times 10^{-5} \times 125^1}{5^{-7} \times 6^{-5}}$

3) Find x : $\left(\dfrac{2}{5}\right)^{2x+6} \times \left(\dfrac{2}{5}\right)^3 = \left(\dfrac{2}{5}\right)^{x+2}$

4) By what number should $(-8)^{-3}$ be multiplied so that the product may be equal to $-6^{-3}$?

5) Simplify : $\left(\dfrac{4}{13}\right)^4 \times \left(\dfrac{13}{7}\right)^2 \times \left(\dfrac{7}{4}\right)^3$

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## ASSESSMENT:

### I Fill in the blanks : (10)

1. $\left(\dfrac{-7}{5}\right)^{-1}$ is equal to ___
2. $(-1)^{103} =$ ___
3. The multiplicative inverse of $\left(\dfrac{-5}{3}\right)^{-99}$ is ___
4. The standard form of 0.000064 is ___
5. The value of $\left(\dfrac{-5}{7}\right)^3 \times (7)^3 =$ ___
6. $\dfrac{1}{25}$ expressed as power of 5 is ___
7. $10^8 \times 10^{-10} =$ ___
8. The value of $\left(\dfrac{3}{2}\right)^{-2}$ is ___
9. $7 \times 10^{-6}$ ___ $129 \times 10^{-7}$ ($<$ or $>$)
10. $5^0 + 6^0 =$ ___

### II Short answer type questions : 5X2 =10

1. simplify: $\left[\dfrac{1}{4}\right]^{-2} + \left[\dfrac{1}{2}\right]^{-2} + \left[\dfrac{1}{3}\right]^{-2}$
2. Find the value of m for which $2^m \div 2^{-2} = 2^5$
3. Simplify : $5^{-7} \div 5^{-10} \times 5^{-5}$
4. Evaluate : $\left\{\left(\dfrac{1}{3}\right)^{-1} - \left(\dfrac{1}{4}\right)^{-1}\right\}^2$
5. Express following in usual form : a) $7.5 \times 10^4$ , b) $2.3 \times 10^{-3}$

### Long answer type questions (8)

7) Find x : $\left(\dfrac{2}{5}\right)^{2x+6} X \left(\dfrac{2}{5}\right)^3 = \left(\dfrac{2}{5}\right)^{x+2}$

8) In a stack there are 5 books each of thickness 20mm and 5 paper sheets each of thickness 0.016 mm. Find the total thickness of stack in standard form.