CLASS 7
MATHEMATICS
CHAPTER: EXPONENTS

$1000 = 10\times10\times10 = 10^3$

$125 = 5\times5\times5 = 5^3$

1. Express 64 as a power of 2

   $64 = 2\times2\times2\times2\times2\times2 = 2^6$

   $64 = 2^6$ Ans

2. Find the value of 3^4

   $3^4 = 3\times3\times3\times3 = 81$ Ans

LAWS OF EXPONENTS

LAWS	EXAMPLES
$(a^m)\times(a^n)=a^{(m+n)}$	$2^3\times2^2 = 2^{(3+2)} = 2^5$
$(a^m)\div(a^n)=a^{(m-n)}$	$2^3\div2^2=2^{(3-2)} = 2^1$
$(a^m)^n = a^{(m\times n)}$	$(2^3)^2 = 2^{(3\times2)} = 2^6$
$a^n\times b^n = (a\times b)^n$	$2^2\times3^2 = (2\times3)^2=6^2$
$a^n\div b^n = (a/b)^n$	$4^2\div2^2 = (4/2)^2=2^2$
$a^0 = 1$	$2^0 = 1$
$a^{(-n)} = 1/a^n$	$2^{-2} = 1/2^2=1/4$

1. Simplify & write the answer in the exponential form

   $(-4)^{-3}\times5^{-3}\times(-5)^{-3}=(-4\times5\times-5)^{-3}$

   $=100^{-3}=1/100^3$ Ans

2. Find the value of $(3^0+4^{-1})\times2^2$

   $(3^0+4^{-1})\times2^2 = (1+¼)\times4 = (5/4)\times4 = 5$ Ans

3. Simplify :

   $(5^{-1}\times2^{-1})\div6^{-1}$

   $=(1/5\times1/2)\div1/6$

   $=(1/10)\times6 =$ ⅗ Ans

SCIENTIFIC NOTATION

- **0.1= 1/10= 10^(-1)**
- **0.001=1/1000= 10^(-3)**
- **450=45×10=[(45/10)×10]×10**
  =4.5×10×10 =4.5×10^2
- **0.00052=52/100000=52/10^5 =[(52/10)×10]/10^5**
  =(5.2×10)/10^5=5.2×(10/10^5)=5.2×(1/10^4)
  5.2×(10^-4)

Home work

1. **Simplify and write the answer in the exponential form**
   (i) (2^5÷2^8)^5 ×2^{-5}
   (ii) [1/2^3]^2

2. **Write the following numbers using scientific notation**
   2500, 0.8, 0.0027

From Text Book

Exercise 4.1	**1. (ii)** **2. (iii)** **3. (vi)** **4. (ii)**
Exercise 4.2	**1. (i),(vii), (xv)** **6. (ii), (iii)**

(Practice all the examples in the text book)