



CAMBRIAN PUBLIC SCHOOL

KANKE ROAD, RANCHI

Revision Assignment

Subject: Mathematics

Class: VIII

POWER PLAY

- 1) What is the value of $3^0 + 4^0 + 5^0$?
- 2) The standard form of 0.0000000085 is.
- 3) If $\left(\frac{3}{5}\right)^{-4} = \left(\frac{5}{3}\right)^X$ what is the value of X?
- 4) If $2^x = 32$, then find the value of 2^{x-3} .
- 5) If the thickness of a paper is 0.001 cm and it is folded n times, its final thickness is given by.
- 6) Write the approximate diameter of the Sun, which is 1,392,000,000 meters, in standard form.
- 7) If $a = 2$, $b = -2$, and $c = 3$, verify the identity $(a \times b)^c = a^c \times b^c$.
- 8) Simplify and express the result as a power with a positive exponent: $\left(\frac{3^2}{4^3}\right)^2 \times \left(\frac{4^3}{3^2}\right)^3$
- 9) Simplify: $\frac{4^4 \times 5^3 \times 2^2}{10^3 \times 8^2}$.
- 10) A newly formed colony of bacteria doubles its population every hour. If the initial population is 10^5 , what will be the population after 5 hours? Express your answer in standard form.
- 11) By what number should $(-8)^{-1}$ be multiplied to get 10^{-1} ?
- 12) Express the number 1728 as a product of powers of its prime factors in exponential form.
- 13) **Exploring Scientific Notation:**

A science magazine published the size and speed of various objects in the universe using powers of 10.

Object	Diameter / Speed	Standard form
virus	0.00000002 m	2×10^{-8} m
Starship speed	300,000,000 m/s	3×10^8 m/s
Planet X	1,500,000,000 m	1.5×10^9 m
DNA strand	1×10^{-9} m	1×10^{-9} m

Based on the table, answer the following questions:

- a) How many times larger is the diameter of Planet X compared to the diameter of a virus?
- b) The speed of the Starship is 3×10^8 m/s. If light travels at approximately 3×10^8 m/s, what does this comparison imply?
- c) Express the diameter of the DNA Strand (1×10^{-9} m) in usual form (decimal notation).
