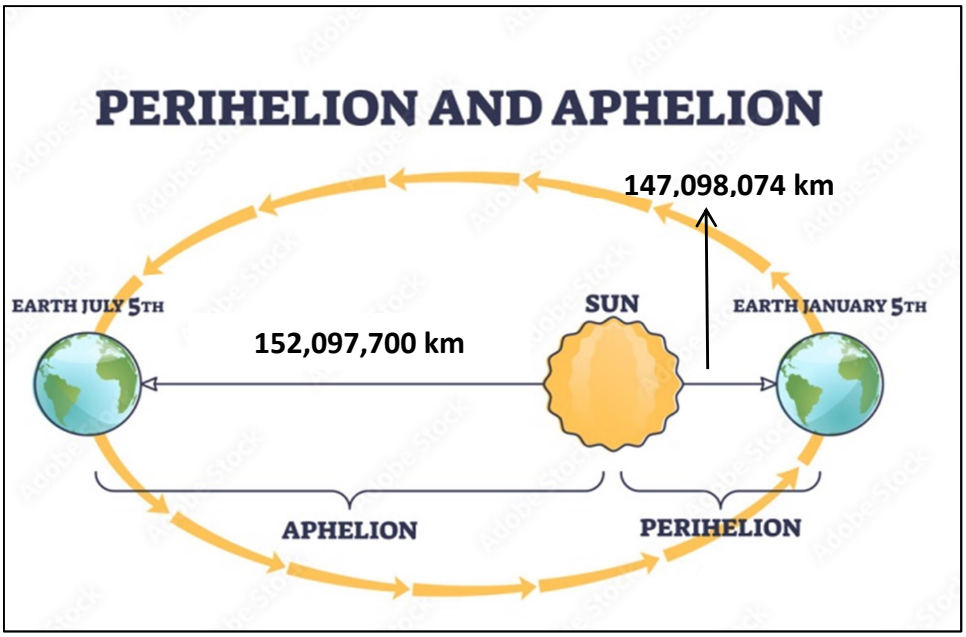
EXPONENTS AND POWERS

Worksheet 2

CASE STUDY



1. In Aphelion position , Earth is at farthest distance from Sun and in Perihelion position, Earth is closest to sun.
The Aphelion distance from Sun's centre and Earth's centre is about **152,097,700** km.
And the Perihelion distance betwwen them is about **147,098,074** km.
On July 5th, Earth is at the farthest position from Sun, i.e., in Aphelion position and on January 5th , in Perihelion position, it is closest to sun.

a. Express the distance in Aphelion position in standard form.
b. Express the Perihelion distance between Earth and Sun in expanded form.
c. Write the Perihelion distance between Earth and Sun in standard form but in meter(m) unit.
d. what is the difference of distance between Earth's Aphelion and Perihelion position?Express it in standard form .

2. The standard form of the number 567892 is-
(a) 5.67892×10^6 (b) 567.892×10^3 (c) 56.7892×10^4 (d) 5.67892×10^5

3. In standard form the number 76859.4 is written as 7.68594×10^n.
The value of n is –
(a) 5 (b) 3 (c) 4 (d)6

4. The actual number which can be expressed in the expanded form as
$5 \times 10^6 + 7 \times 10^5 + 9 \times 10^3 + 8 \times 10^2$ is –
(a) 5798000 (b) 5709008 (c) 5709080 (d) 5709800

5. The standard form of the number 0.000000769 is –
(a) 769×10^{-6} (b) 7.69×10^{-7} (c) 76.9×10^{-8} (d) 7.69×10^7

6. If $2^x \times 2^{2x-1} = 256$, then find the value of 6^{2x-8}.

7. Evaluate:

$$\left(\frac{6\times10}{2^2\times3^3}\right)^2 \times \frac{25}{27}$$

8. If $3^{2025} - 3^{2027} - 3^{2024} + 3^{2028} = a \times 3^{2024}$, find the value of $\left(\frac{a}{7}\right)^{\frac{a}{28}}$