

Objective 45

Compare the relative size of two numbers written in scientific notation

PROBLEM

How many times larger is 3×10^{10} than 5×10^6 ?

STEP 1

Divide to calculate how much larger one number is than another.

$$\frac{3 \times 10^{10}}{5 \times 10^6}$$

STEP 2

Write $\frac{3 \times 10^{10}}{5 \times 10^6}$ as the product of two fractions.

$$\frac{3 \times 10^{10}}{5 \times 10^6} = \frac{3}{5} \times \frac{10^{10}}{10^6}$$

STEP 3

Write $\frac{3}{5}$ as a decimal. Use the quotient of powers property to simplify $\frac{10^{10}}{10^6}$.

$$\frac{3}{5} \times \frac{10^{10}}{10^6} = 0.6 \times 10^{10-6} = 0.6 \times 10^4$$

STEP 4

Multiply 0.6×10^4 .

$$\begin{aligned} 0.6 \times 10^4 &= 0.6 \times 10,000 \\ &= 6000 \end{aligned}$$

← Answer is 6000

Guided Practice:

How many times larger is 3×10^6 than 3×10^5 ?

How many times larger is 1×10^6 than 5×10^4 ?

How many times larger is 6×10^7 than 3×10^4 ?

Practice: Write each quantity in scientific notation or convert to standard form.

1. How many times larger is 2×10^6 than 6×10^9
2. How many times larger is 1×10^{13} than 1×10^6
3. How many times larger is 4×10^9 than 5×10^3
4. How many times larger is 7×10^6 than 7×10^2
5. How many times larger is 4,000,000,000 than 2×10^7

Additional Help:

<https://www.youtube.com/watch?v=MNAQWSjveBo>

https://learnzillion.com/lesson_plans/5116-compare-large-numbers-using-scientific-notation