REVIEW

Powers
of Ten
POWERS OF TEN

It is often useful to use powers of ten when expressing large and small numbers.

Positive exponents:

\[ 10^2 = \]
\[ 10^3 = \]
\[ 10^6 = \]

What is a trillion?

Negative exponents:

\[ 10^{-2} = \]
\[ 10^{-3} = \]
\[ 10^{-6} = \]

How do you write one-trillionth?

NOTE:

A positive exponent tells how many zeros follow the 1.

A negative exponent tells how many places are to the right of the decimal point, including the 1.
Multiplying and Dividing Powers of 10.

Rules of exponents:
\[ a^m \times a^n = a^{m+n} \]
\[ \frac{a^m}{a^n} = a^{m-n} \]
\[ (a^m)^n = a^{mxn} \]

\[ 10^4 \times 10^9 = \]
\[ 10^5 \times 10^{-4} = \]
\[ 10^{-7} \times 10^{-3} = \]

\[ 10^4 \div 10^9 = \]
\[ 10^5 \div 10^{-4} = \]
\[ 10^{-7} \div 10^{-3} = \]

Adding and Subtracting Powers of 10

If the powers of 10 are not the same, one must write them in decimal notation.

\[ 10^4 + 10^3 = \]
\[ 10^5 + 10^{-4} = \]
\[ 10^{-7} + 10^{-3} = \]