SCIENTIFIC NOTATION

Name _____

Scientists very often deal with very small and very large numbers, which can lead to a lot of confusion when counting zeros! We have learned to express these numbers as powers of 10.

Scientific notation takes the form of $M \times 10^n$ where $1 \leq M < 10$ and "n" represents the number of decimal places to be moved. Positive n indicates the standard form is larger than zero whereas negative n would indicate a number smaller than zero.

> **Example 1:** Convert 1,500,000 to scientific notation.
> We move the decimal point so that there is only one digit to its left, a total of 6 places.
> $$1,500,000 = 1.5 \times 10^6$$
>
> **Example 2:** Convert 0.000025 to scientific notation.
> For this, we move the decimal point 5 places to the right.
> $$0.000025 = 2.5 \times 10^{-5}$$
> (Note that when a number starts out less than one, the exponent is always negative.)

Convert the following to scientific notation.

1. 0.005 = _____

2. 5,050 = _____

3. 0.0008 = _____

4. 1,000 = _____

5. 1,000,000 = _____

6. 0.25 = _____

7. 0.025 = _____

8. 0.0025 = _____

9. 500 = _____

10. 5,000 = _____

Convert the following to standard notation.

1. 1.5×10^3 = _____

2. 1.5×10^{-3} = _____

3. 3.75×10^{-2} = _____

4. 3.75×10^2 = _____

5. 2.2×10^5 = _____

6. 3.35×10^{-1} = _____

7. 1.2×10^{-4} = _____

8. 1×10^4 = _____

9. 1×10^{-1} = _____

10. 4×10^0 = _____

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