

# DO NOW

What do you remember about scientific notation?

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## 1.8 Scientific Notation

\* Used to: represent VERY small or VERY large numbers

\* Based on: powers of 10

$$10^1 = 10$$

$$10^2 = 100$$

$$10^3 = 1000$$

$$10^4 = 10,000$$

⋮

$$10^0 = 1$$

$$10^{-1} = \frac{1}{10} = .1$$

$$10^{-2} = \frac{1}{10^2} = .01$$

$$10^{-3} = \frac{1}{10^3} = .001$$

$$10^{-4} = .0001$$

⋮

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### Basic Form for scientific notation:

$a \times 10^n$  where  $n$  is an integer and  $1 \leq a < 10$

positive exponents -

↳ larger #'s

negative exponents -

↳ smaller #'s

↳ EXACTLY one digit to the left of the decimal point (NOT 0)

### Classwork 1.8

1. 6387.

6.387 × 10<sup>3</sup>

3. 0.00003.

3 × 10<sup>-5</sup>

7. 5.8 × 10<sup>7</sup> ← 7 places larger

58,000,000

8. 9.5 × 10<sup>-6</sup> ← 6 places smaller

.0000095

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### Operations and Scientific Notation

\* These are coefficients, bases and exponents.

Use: exponent rules

\* Rewrite the answer to proper scientific notation

Examples:

1.  $(4.2 \times 10^3)(3.7 \times 10^5)$

Regroup:  $(4.2 \times 3.7)(10^3 \times 10^5)$

Multiply:  $15.54 \times 10^8$

Rewrite:  $1.554 \times 10^9$

2.  $\frac{37.63 \times 10^3}{5.3 \times 10^5}$

Separate:  $\frac{37.63}{5.3} \times \frac{10^3}{10^5}$

divide:  $7.1 \times 10^{-2}$

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# HOMEWORK

Worksheet - HW 1.8 Scientific Notation

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