

## Scientific Notation (3-3)

<i>scientific notation</i>	<del>Decode</del>
Definition allows you to write really large or small #s easily	Example $2.7 \times 10^{13}$ $\uparrow$ $1 \leq x < 10$
<i>standard notation</i>	<del>Decode</del>
Definition numerical form of scientific notation	Example $1.5 \times 10^3 = 1,500$

### Example 1: Translating Scientific Notation to Standard Notation

**Positive** exponent: **move right**

**Negative** exponent: **move left**

I Do	We Do	You Do
$4.73 \times 10^5$	$2.1 \times 10^{-8}$	$1.5 \times 10^{-7}$
$4.73000$ $473,000$	$0.000000021$	$0.00000015$

**Example 2: Translating Standard Notation to Scientific Notation**

Write each number in scientific notation.

Number is **smaller than 1**: exponent is **negative**

Number is **greater than 1**: exponent is **positive**

I Do	We Do	You Do
$0.000009$ $9 \times 10^{-6}$	$1,500,000$ $1.5 \times 10^6$	$0.00000987$ $9.87 \times 10^{-6}$

**Example 3: Application**

A pencil is 18.7 cm long. If you were to lay 10,000 pencils end-to-end, how many centimeters long would they be? Write the answer in scientific notation.

$18,7000$	$187,000$ $1.87 \times 10^5$
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