Scientific Notation: Guided Notes

# Standard Notation to Scientific Notation

**Step 1)** Find the first \_\_\_\_\_\_\_\_\_\_ digit and place the decimal after it.

**Step 2)** Count how many places the decimal moves to get back to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Step 3)** Write the number as:

**Step 4)** Determine the exponent:

* If the number is \_\_\_\_\_\_\_\_\_\_ than 1, the exponent is \_\_\_\_\_\_\_\_\_\_.
* If the number is \_\_\_\_\_\_\_\_\_\_ than 1, the exponent is \_\_\_\_\_\_\_\_\_\_.

# Significant Figures

# Examples

Write the following numbers in scientific notation with two significant figures.

|  |  |
| --- | --- |
| **(a)** 47,000 | **(b)** 3,500,000 |
| **(c)** 0.0059 | **(d)** 0.000082 |

# Scientific Notation to Standard Notation

**Step 1)** Look at the \_\_\_\_\_\_\_\_\_\_\_ of the 10.

**Step 2)** Move the decimal in the number:

* To the \_\_\_\_\_\_\_\_ if the exponent is positive.
* To the \_\_\_\_\_\_\_\_ if the exponent is negative.

**Step 3)** Add \_\_\_\_\_\_\_\_ if needed to fill in missing places.

# Examples

Write the following numbers in standard notation with two significant figures.

|  |  |
| --- | --- |
| **(a)** 9.4 × 10–3 | **(b)** 3.7 × 10–5 |
| **(c)** 2.6 × 107 | **(d)** 1.5 × 104 |

# Comparing Numbers in Scientific Notation

* Look at the \_\_\_\_\_\_\_\_\_\_\_\_\_ first.
	+ The number with the \_\_\_\_\_\_\_\_\_ exponent is the greater number.

|  |  |
| --- | --- |
| **ex.)** 3.1 × 105  8.7 × 103 | **ex.)** 9.2 × 10–2  2.4 × 10–6 |

* + If the \_\_\_\_\_\_\_\_\_\_\_\_ are the same, compare the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	The number with the \_\_\_\_\_\_\_\_\_ decimal is the greater number.

|  |  |
| --- | --- |
| **ex.)** 2.4 × 105  5.1 × 105 | **ex.)** 8.0 × 10–6  1.3 × 10–6 |

***Watch out for negative exponents!***