

8 - 3

Scientific Notation

****used for very large or
very small numbers****

written as...

$$a \times 10^n$$

$$a \geq 1 \text{ and } < 10$$

3.41 not ~~34.1~~



positive exponent means...

big numbers

negative exponent means...

small numbers

Express each number in standard notation.

Ex: 2.45×10^8 245,000,000

Ex: 3×10^{-5} .00003
3.0

Ex: 4.713×10^1 47.13

Express each number in scientific notation.

Ex: $\underline{30,500,000}$ 3.05×10^7

Ex: $\underline{.000781}$ 7.81×10^{-4}

Ex: $\underline{219,000}$ 2.19×10^5

Multiplication with Scientific Notation

Ex: $(5 \times 10^{-8})(2.9 \times 10^2)$

A handwritten diagram illustrating the multiplication of scientific notation. A bracket under the coefficient '5' and the coefficient '2.9' is labeled with a handwritten 'x'. Another bracket under the exponent '10⁻⁸' and the exponent '10²' is labeled with a handwritten '+', indicating that the exponents are to be added.

$$14.5 \times 10^{-6}$$

$$1.45 \times 10^{-5}$$

Multiplication with Scientific Notation

Ex: $(7 \times 10^{-6})(4.3 \times 10^{12})$

$30,1 \times 10^6$

3.01×10^7

30.1×10^6

Division with Scientific Notation

Ex: $\frac{1.279 \times 10^9}{5.22 \times 10^5}$ -

245×10^4

2.45×10^3

$245 \times 10^{4-3}$

Division with Scientific Notation

Ex: $\frac{6.4 \times 10^4}{1.6 \times 10^7}$ -

$$4 \times 10^{-3}$$

4.0



Homework:

p. 428 #18 - 24, 30 - 38, 44 - 54

(only evens for all sections)