

Comparing Numbers in Scientific Notation

Homework

1. Place the appropriate inequality symbols between the following numbers:

- a. 3.2×10^6 4.2×10^9
- b. 5.41×10^4 6.54×10^7
- c. 9.875×10^{-8} 1.0345×10^8
- d. 3.0×10^{-6} 4.0×10^{-9}
- e. 4.35×10^{-4} 7.21×10^{-3}
- f. 8.369×10^{-8} 4.1×10^{-13}
- g. 3.98×10^6 5.98×10^6
- h. 1.65×10^4 1.56×10^4
- i. 8.3×10^{-8} 3.0×10^{-8}
- j. 6.8999×10^{15} 7.43×10^{15}

2. Order the following sets of numbers from least to greatest.

- a. 4.7×10^3 8.9×10^7 6.5×10^5 6.7×10^4
- b. 2.0×10^{12} 3.0×10^6 4.0×10^8 5.0×10^3
- c. 9.9×10^5 5.7×10^{-3} 1.8×10^{-7} 4.4×10^6
- d. 1.9×10^{-10} 3.6×10^{-6} 9.7×10^3 4.5×10^{-23}
- e. 9.3×10^8 5.0×10^8 8.9×10^8 6.7×10^8
- f. 5.5×10^{-7} 4.5×10^{-7} 9.0×10^{-7} 2.7×10^{-7}

Multiplying and Dividing with Scientific Notation

Homework

3. Evaluate the following. Express the result in scientific notation.

- a. $(3.0 \times 10^{-5})(3.0 \times 10^8) =$
- b. $(4.0 \times 10^2)(4.0 \times 10^7) =$
- c. $(7.0 \times 10^{-3})(6.0 \times 10^6) =$
- d. $(1.2 \times 10^7)(2.2 \times 10^{-3}) =$
- e. $(2.0 \times 10^{-4})(7.1 \times 10^9) =$
- f. $(4.4 \times 10^{-7})(3.0 \times 10^{-3}) =$
- g. $(6.6 \times 10^8) \div (2.0 \times 10^4) =$
- h. $(2.7 \times 10^6) \div (3.0 \times 10^{-4}) =$
- i. $(7.5 \times 10^{12}) \div (2.0 \times 10^5) =$
- j. $\frac{6.6 \times 10^5}{3.3 \times 10^{15}} =$
- k. $\frac{5.4 \times 10^4}{9.0 \times 10^8} =$
- l. $\frac{4.8 \times 10^{-4}}{8.0 \times 10^{-10}} =$

4. A tiny space inside another computer chip has been measured to be 3.5×10^{-7} meters wide, 1.8×10^{-8} meters long, and 6.45×10^{-5} meters high. What is its volume?
5. The point on a pin has a diameter of approximately 1×10^{-4} meters. If a neon atom has a diameter of about 7.0×10^{-11} meters, about how many neon atoms could fit across the diameter of the point of a pin?

Adding and Subtracting with Scientific Notation

Homework

6. Evaluate the following. Express the result in scientific notation.
 - a. $(5.8 \times 10^9) + (3.1 \times 10^9) =$
 - b. $(3.5 \times 10^6) + (5.8 \times 10^6) =$
 - c. $(7.5 \times 10^{-4}) - (4.2 \times 10^{-4}) =$
 - d. $(5.4 \times 10^7) + (2.2 \times 10^8) =$
 - e. $(6.5 \times 10^{12}) - (3.4 \times 10^{11}) =$
7. What is the difference between the mass of Mars (6.42×10^{23} kg) and the mass of Mercury (3.3×10^{23} kg)?
8. What is the difference between the mass of Earth (5.98×10^{24} kg) and the mass of Mars (6.42×10^{23} kg)?