Purpose of Scientific Notation

Homework

1. Express the following powers of ten in standard form:
    a. 10^9 =
    b. 10^8 =
    c. 10^7 =
    d. 10^6 =
    e. 10^5 =

2. Express the following answers as powers of 10.
    a. $10^2 \times 10^4$ =
    b. $10^3 \times 10^{12}$ =
    c. $10^{-6} \times 10^8$ =
    d. $10^{-3} \times 10^{-9}$ =
    e. $10^{-7} \times 10^2$ =

How to Write Numbers in Scientific Notation

Homework

3. Which of the following are correctly written in scientific notation?
    a. 0.5×10^4
    b. 15×10^9
    c. 3.5567×10^{-7}
    d. 1×10^6
    e. 5.04×10^{-4}
    f. 0.05×10^{-2}
    g. 6.788432×10^8

4. Write each number in scientific notation.
    a. 4,566,000
    b. 17,000,300
    c. 35,000
    d. 1,078,000,000
    e. 4,560,700
    f. 943,000,000,000
    g. 0.000578
    h. 0.004598732
    i. 0.000000558744
    j. 0.0001000358
    k. 0.00045805
    l. 0.000000000000851

5. Write each number in scientific notation.
    a. Mass of smallest insect, a parasitic wasp: 0.00000492 g
    b. Speed of light: 300,000,000 m/sec
    c. Mass of a dust particle: 0.000000000753 kg
    d. Distance from Earth to the Sun is approximately: 149,600,000 km

e. Earth's circumference: 40,000,000 m
f. Distance between the Sun and Neptune: 4,497,100,000 km

Converting to Standard Form

Homework

6. Write each number in standard form.
    a. Width of a human hair:7.5×10^{-5} meter
    b. Distance between Jupiter and the Sun: 4.836×10^{11}
    c. Charge on a Proton/Electron: 1.602176×10^{-19} C
    d. Faraday constant: 9.649×10^{4}
    e. Number of bits on a computer hard disk (as of 2010): 1×10^{13} GB
    f. Wavelength of green light: 5.5×10^{-7} m

7. Write each number in standard form:
    a. 8.445×10^{-4}
    b. 5.256544×10^{9}
    c. 1.0×10^{-5}
    d. 7.45207×10^{8}
    e. 2.67×10^{-5}
    f. 6.0005×10^{6}
    g. 4.00896×10^{-3}