

# Order of Magnitude

Name: Key Period: 1, 3, 7 Date: 9/10/19

**Instructions:** Read each question carefully. Please use metric units for each answer that requires units. Show your work/logic for each calculation.

1. Estimate the speed at which your hair grows. Make sure you include the assumptions you've made and units you've used for your calculation.

2. Determine the order of magnitude for the following values:

a. 6789

$10^4$

d. 9 876 543 210

$10^{10}$

b. 0.78

$10^0$

e. 578

$10^3$

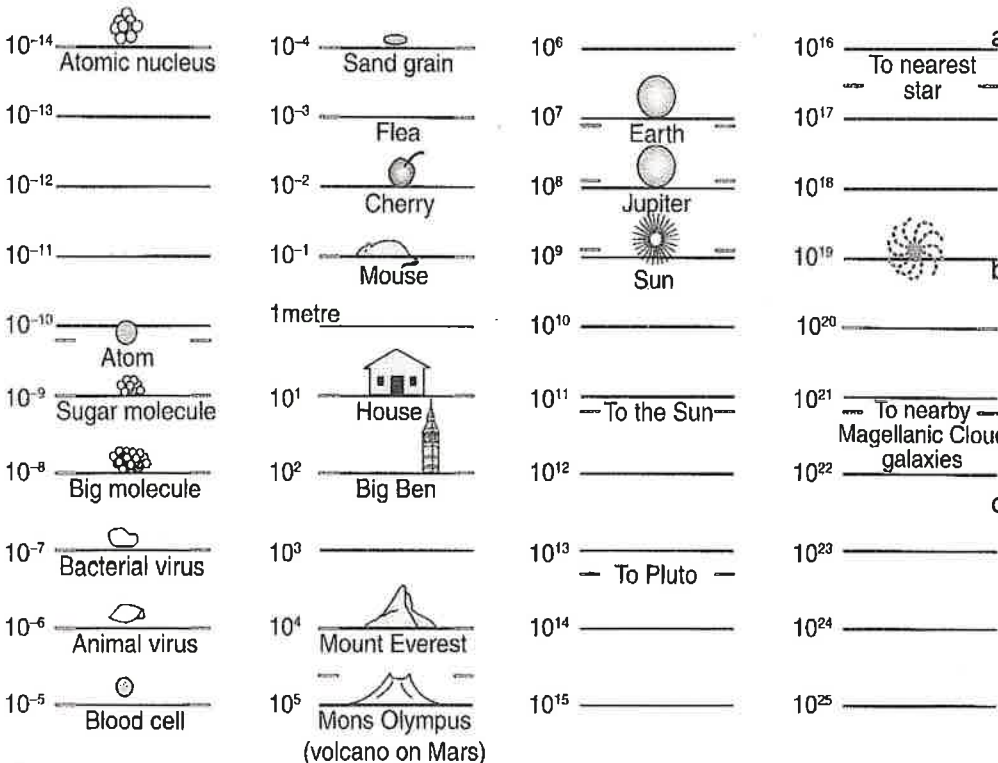
c. 0.00007

$10^{-4}$

f. 32500

$10^5$

3. The information given below shows the order of magnitude of the size (lengths, widths, distance to, etc.) of various objects in the universe. Use this information to answer the following questions:



a. How much larger is an atom than an atomic nucleus?

$$\frac{10^{-10}}{10^{-14}} = 10^4$$

b. How much larger is the Earth than Mount Everest?

$$\frac{10^7}{10^4} = 10^3$$

c. Compare the distances from Earth to the sun and from Earth to Pluto

$$\frac{10^{13}}{10^{11}} = 10^2$$