Answer on the question #63011, Chemistry / General Chemistry

Question:
Hydrogen is the lightest element and each atom has an average mass of 1.66 x 10-24 grams. This is a very small number, but remember that it is only one atom. What is the relative mass of hydrogen if it is the lightest element?

Solution:

The relative mass of an element is the ratio of its relative mass and the mass of 1/12 of carbon-12 atom in its ground state:

$$m_{relative}(H) = \frac{m_{av}(H)}{m(\frac{1}{12}\,^{12}_{6}C)} = \frac{1.66 \cdot 10^{-24}(g)}{1.660833 \cdot 10^{-24}(g)} = 1.000\ (amu)$$

Answer: Relative mass of hydrogen atom is 1.000 amu. All the other elements have higher mass, so it is the lightest element.