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A flask contains an acidic solution with a concentration of 7.1×10^{15} hydrogen ions per milliliter. If 4.8×10^{23} hydrogen ions have a total mass of 0.8 grams, which of the following is closest to the concentration, in grams per liter, of the acidic solution?

A) 1.2×10^{-5}

B) 1.2×10^{-8}

C) 1.5×10^{-5}

D) 1.5×10^{-8}

$$\frac{7.1 \times 10^{15} \text{ hydrogen ions}}{1 \text{ mL}} \times \frac{0.8 \text{ grams}}{4.8 \times 10^{23} \text{ hydrogen ions}} \times \frac{1000 \text{ mL}}{1 \text{ L}}$$

$$= \frac{7.1 \times 10^{15} \times 0.8 \times 10^{3}}{4.8 \times 10^{23}} \text{ grams/L} \simeq 1.2 \times 10^{-5} \text{ grams/L}$$