



8. Calculate the mass of  $9.7 \times 10^{25}$  carbon atoms.

$$\frac{9.7 \times 10^{25} \text{ atoms}}{6.02 \times 10^{23} \text{ atoms}} \times \frac{1 \text{ moles}}{1 \text{ moles}} \times \frac{12.01 \text{ grams}}{1 \text{ moles}} = 1900 \text{ grams}$$

9. We can also convert the other direction... A pencil contains 8.6 g of graphite (carbon). Change this from grams of carbon to atoms of carbon.

$$\frac{8.6 \text{ g}}{12.01 \text{ grams}} \times \frac{1 \text{ moles}}{1 \text{ moles}} \times \frac{6.02 \times 10^{23} \text{ atoms}}{1 \text{ moles}} = 4.31 \times 10^{23}$$

10. How many atoms of carbon are there in 0.008324 g of carbon?

$$\frac{0.008324 \text{ gram}}{12.01 \text{ grams}} \times \frac{1 \text{ moles}}{1 \text{ moles}} \times \frac{6.02 \times 10^{23} \text{ atoms}}{1 \text{ moles}} = 4.17 \times 10^{20} \text{ atoms}$$