Warm-Up #14 ANSWER KEY

1. What is the mass of sulfur in 2.6 moles of sulfur?

given: 2.6 mol S
want: ? g S

$$2.6 \text{ mol S} \times \frac{32.07 \text{ g S}}{1 \text{ mol S}} = 83.382 \text{ g S}$$

$$= \boxed{83 \text{ g S}}$$

2 sig figs

2. What is the mass of calcium in 5.22×10^{25} atoms of calcium?

given: 5.22×10^{25} atoms Ca
want: ? g Ca

$$5.22 \times 10^{25} \text{ atoms Ca} \times \frac{1 \text{ mol Ca}}{6.02 \times 10^{23} \text{ atoms Ca}} \times \frac{40.08 \text{ g Ca}}{1 \text{ mol Ca}}$$

$$= 3475.375 \text{ g Ca} = \boxed{3480 \text{ g Ca}}$$

3 sig figs

Either one. Both are correct.

OR $= 3.475375 \times 10^3 \text{ g Ca} = \boxed{3.48 \times 10^3 \text{ g Ca}}$

3 sig figs

★ Reminders

★ include units and element symbol in work and answer

★ in Question #2, you must first convert to moles then convert to atoms.