

1. What is the mass in grams of 2.00 moles of Antimony?  
given

2.00 mole Sb  
? g Sb  
MM<sub>Sb</sub>:  $\frac{121.75g}{1 \text{ mole}}$

$$\frac{2.00 \text{ mole Sb}}{1 \text{ mole Sb}} \times 121.75g \text{ Sb} = \boxed{244g \text{ Sb}}$$

2. What is the mass in grams of 3.13 moles of Beryllium?

3.13 mole Be  
? g Be  
MM<sub>Be</sub>:  $\frac{9.01g}{1 \text{ mole}}$

$$\frac{3.13 \text{ mole Be}}{1 \text{ mole Be}} \times 9.01g \text{ Be} = \boxed{28.2g \text{ Be}}$$

3. What is the mass in grams of 1.42 moles of Platinum?

1.42 ~~g~~ mole Pt  
? g Pt  
MM<sub>Pt</sub>:  $\frac{195.08g}{1 \text{ mole}}$

$$\frac{1.42 \text{ mole Pt}}{1 \text{ mole Pt}} \times 195.08g \text{ Pt} = \boxed{277g \text{ Pt}}$$

4. What is the mass in grams of 4.67 moles of Cobalt?

4.67 mole Co  
? g Co  
MM<sub>Co</sub>:  $\frac{58.93g}{1 \text{ mole}}$

$$\frac{4.67 \text{ mole Co}}{1 \text{ mole Co}} \times 58.93g = \boxed{275g \text{ Co}}$$

5. How many moles of Germanium are in 46.89 grams?

46.89g Ge  
? mole Ge

MM<sub>Ge</sub>:  $\frac{72.61\text{g}}{1\text{mole}}$

$$\frac{46.89\text{g Ge}}{72.61\text{g Ge}} \left| \frac{1\text{ mole Ge}}{72.61\text{g Ge}} \right. = \boxed{6.458 \times 10^{-1} \text{ mole Ge}}$$

6. How many moles of Titanium are in 201.46 grams?

201.46g Ti  
? mole Ti

MM<sub>Ti</sub>:  $\frac{47.88\text{g}}{1\text{mole}}$

$$\frac{201.46\text{g Ti}}{47.88\text{g Ti}} \left| \frac{1\text{ mole Ti}}{47.88\text{g Ti}} \right. = \boxed{4.208 \text{ mole Ti}}$$

7. How many moles of Silicon are in 66.78 grams?

66.78g Si  
? moles Si

MM<sub>Si</sub>:  $\frac{28.09\text{g}}{1\text{mole}}$

$$\frac{66.78\text{g Si}}{28.09\text{g Si}} \left| \frac{1\text{ mole Si}}{28.09\text{g Si}} \right. = \boxed{2.377 \text{ mole Si}}$$

8. How many moles of Gold are in 172.61 grams?

172.61g Au  
? moles Au

MM<sub>Au</sub>:  $\frac{196.97\text{g}}{1\text{mole}}$

$$\frac{172.61\text{g Au}}{196.97\text{g Au}} \left| \frac{1\text{ mole Au}}{196.97\text{g Au}} \right. = \boxed{8.7633 \times 10^{-1} \text{ mole Au}}$$

Blue

9. How many moles are in  $2.14 \times 10^{24}$  atoms of Nitrogen?

$$2.14 \times 10^{24} \text{ atom N}$$

? mole N

$$1 \text{ mole N} = 6.02 \times 10^{23} \text{ atom N}$$

$$\frac{2.14 \times 10^{24} \text{ atom N} \mid 1 \text{ mole N}}{6.02 \times 10^{23} \text{ atom N}} =$$

3.55 mole N

10. How many moles are in  $5.45 \times 10^{21}$  atoms of Arsenic?

$$5.45 \times 10^{21} \text{ atom As}$$

? mole As

$$1 \text{ mole As} = 6.02 \times 10^{23} \text{ atom As}$$

$$\frac{5.45 \times 10^{21} \text{ atom As} \mid 1 \text{ mole As}}{6.02 \times 10^{23} \text{ atom As}} =$$

$9.05 \times 10^{-3}$  mole As

11. How many moles are in  $6.87 \times 10^{22}$  atoms of

Palladium?

$$6.87 \times 10^{22} \text{ atom Pd}$$

? mole Pd

$$1 \text{ mole Pd} = 6.02 \times 10^{23} \text{ atom Pd}$$

$$\frac{6.87 \times 10^{22} \text{ atom Pd} \mid 1 \text{ mole Pd}}{6.02 \times 10^{23} \text{ atom Pd}} =$$

$1.14 \times 10^{-1}$  mole Pd

12. How many moles are in  $3.33 \times 10^{23}$  atoms of

Chlorine?

$$3.33 \times 10^{23} \text{ atom Cl}$$

? mole Cl

$$1 \text{ mole Cl} = 6.02 \times 10^{23} \text{ atom Cl}$$

$$\frac{3.33 \times 10^{23} \text{ atom Cl} \mid 1 \text{ mole Cl}}{6.02 \times 10^{23} \text{ atom Cl}} =$$

$5.53 \times 10^{-1}$  mole Cl

# Salmon

13. How many atoms are in 6.00 moles of Zinc?

6.00 mole Zn  
? atom Zn

1 mole Zn =  $6.02 \times 10^{23}$  atom Zn

$$\frac{6.00 \text{ mole Zn}}{1 \text{ mole Zn}} \left| \frac{6.02 \times 10^{23} \text{ atom Zn}}{1 \text{ mole Zn}} \right.$$

$$= \boxed{3.61 \times 10^{24} \text{ atom Zn}}$$

14. How many atoms are in 2.68 moles of Copper?

2.68 mole Cu  
? atom Cu

1 mole Cu =  $6.02 \times 10^{23}$  atom Cu

$$\frac{2.68 \text{ mole Cu}}{1 \text{ mole Cu}} \left| \frac{6.02 \times 10^{23} \text{ atom Cu}}{1 \text{ mole Cu}} \right.$$

$$= \boxed{1.61 \times 10^{24} \text{ atom Cu}}$$

15. How many atoms are in 5.18 moles of Tin?

5.18 mole Sn  
? atom Sn

1 mole Sn =  $6.02 \times 10^{23}$  atom Sn

$$\frac{5.18 \text{ mole Sn}}{1 \text{ mole Sn}} \left| \frac{6.02 \times 10^{23} \text{ atom Sn}}{1 \text{ mole Sn}} \right.$$

$$\boxed{3.12 \times 10^{24} \text{ atom Sn}}$$

16. How many atoms are in 4.31 moles of Sodium?

4.31 mole Na  
? atom Na

1 mole Na =  $6.02 \times 10^{23}$  atom Na

$$\frac{4.31 \text{ mole Na}}{1 \text{ mole Na}} \left| \frac{6.02 \times 10^{23} \text{ atom Na}}{1 \text{ mole Na}} \right.$$

$$\boxed{2.59 \times 10^{24} \text{ atom Na}}$$

17. How many atoms are in 32.68 grams of Sulfur?

$$\begin{array}{l} 32.68\text{g S} \\ ? \text{ atoms S} \\ \text{MM}_S = \frac{32.07\text{g}}{1 \text{ mole}} \end{array}$$

$$\frac{32.68\text{g S}}{32.07\text{g S}} \times \frac{1 \text{ mole S}}{1 \text{ mole S}} \times 6.02 \times 10^{23} \text{ atom S}$$

$$1 \text{ mole S} = 6.02 \times 10^{23} \text{ atom S}$$

$$\boxed{6.13 \times 10^{23} \text{ atom S}}$$

18. How many atoms are in 301.20 grams of Silver?

$$\begin{array}{l} 301.20\text{g Ag} \\ ? \text{ atom Ag} \\ \text{MM}_{\text{Ag}} = \frac{107.87\text{g}}{1 \text{ mole}} \end{array}$$

$$\frac{301.20\text{g Ag}}{107.87\text{g Ag}} \times \frac{1 \text{ mole Ag}}{1 \text{ mole Ag}} \times 6.02 \times 10^{23} \text{ atom Ag}$$

$$1 \text{ mole} = 6.02 \times 10^{23} \text{ atom Ag}$$

$$\boxed{1.68 \times 10^{24} \text{ atom Ag}}$$

19. How many atoms are in 0.56 grams of Boron?

$$\begin{array}{l} 0.56\text{g B} \\ ? \text{ atoms} \\ \text{MM}_B = \frac{10.81\text{g}}{1 \text{ mole}} \end{array}$$

$$\frac{0.56\text{g B}}{10.81\text{g B}} \times \frac{1 \text{ mole B}}{1 \text{ mole B}} \times 6.02 \times 10^{23} \text{ atom B}$$

$$1 \text{ mole} = 6.02 \times 10^{23} \text{ atom B}$$

$$\boxed{3.1 \times 10^{22} \text{ atom B}}$$

20. How many atoms are in 264.32 grams of Vanadium?

$$\begin{array}{l} 264.32\text{g V} \\ ? \text{ atom V} \\ \text{MM}_V = \frac{50.94\text{g}}{1 \text{ mole}} \end{array}$$

$$\frac{264.32\text{g V}}{50.94\text{g V}} \times \frac{1 \text{ mole V}}{1 \text{ mole V}} \times 6.02 \times 10^{23} \text{ atom V}$$

$$1 \text{ mole V} = 6.02 \times 10^{23} \text{ atom V}$$

$$\boxed{3.12 \times 10^{24} \text{ atom V}}$$

21. What is the mass in grams of  $7.21 \times 10^{21}$  atoms of

Calcium?

$7.21 \times 10^{21}$  atoms Ca

? g Ca

MM<sub>Ca</sub> =  $\frac{40.08\text{g}}{1\text{mole}}$

1 mole Ca =  $6.02 \times 10^{23}$  atom Ca

|                               |                               |           |
|-------------------------------|-------------------------------|-----------|
| $7.21 \times 10^{21}$ atom Ca | 1 mole Ca                     | 40.08g Ca |
|                               | $6.02 \times 10^{23}$ atom Ca | 1 mole Ca |
| $4.80 \times 10^1$ g Ca       |                               |           |

22. What is the mass in grams of  $1.99 \times 10^{22}$  atoms of

Carbon?

$1.99 \times 10^{22}$  atom C

? g C

MM<sub>C</sub> =  $\frac{12.01\text{g}}{1\text{mole}}$

1 mole C =  $6.02 \times 10^{23}$  atom C

|                              |                              |          |
|------------------------------|------------------------------|----------|
| $1.99 \times 10^{22}$ atom C | 1 mole C                     | 12.01g C |
|                              | $6.02 \times 10^{23}$ atom C | 1 mole C |
| $3.97 \times 10^{-1}$ g C    |                              |          |

23. What is the mass in grams of  $3.65 \times 10^{23}$  atoms of

Iron?

$3.65 \times 10^{23}$  atom Fe

? g Fe

MM<sub>Fe</sub> =  $\frac{55.85\text{g}}{1\text{mole}}$

1 mole =  $6.02 \times 10^{23}$  atom Fe

|                               |                               |           |
|-------------------------------|-------------------------------|-----------|
| $3.65 \times 10^{23}$ atom Fe | 1 mole Fe                     | 55.85g Fe |
|                               | $6.02 \times 10^{23}$ atom Fe | 1 mole Fe |
| $3.39 \times 10^1$ g Fe       |                               |           |

24. What is the mass in grams of  $6.12 \times 10^{24}$  atoms of

Potassium?

$6.12 \times 10^{24}$  atom K

? g K

MM<sub>K</sub> =  $\frac{39.10\text{g}}{1\text{mole}}$

1 mole =  $6.02 \times 10^{23}$  atom K

|                              |                              |          |
|------------------------------|------------------------------|----------|
| $6.12 \times 10^{24}$ atom K | 1 mole K                     | 39.10g K |
|                              | $6.02 \times 10^{23}$ atom K | 1 mole K |
| $3.97 \times 10^2$ g K       |                              |          |