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Molar Conversions Practice, Part III

Calculate the molar mass of each of the following substances.

1) BaO =_____g/mol
2) Al_2S_3 =_____g/mol
3) $Ba(NO_3)_2$ =_____g/mol
4) NaOH =_____g/mol
5) P_4O_{10} =_____g/mol

Perform the following conversions. Show all work.

6) 50.8 g BaO =_____ mol

7) 75.0 g $Ba(NO_3)_2$ = _____ mol

8) 3.66×10^{-5} g P_4O_{10} = _____ mol

9) 2.72×10^{3} g Al_2S_3 = _____ mol

10) 160.0 g NaOH = _____ mol

Perform the following conversions. Show all work.

11) 1.30 mol $Ca(OH)_2$ = _____g

12) 1.93 mol Fe = _____ g

13) 0.0937 mol $C_6H_{12}O_6$ = _____g

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14) 17.4 mol C_4H_{10} = _____g

15) 1.19×10^3 mol U = _____g

Perform the following conversions. Show all work.

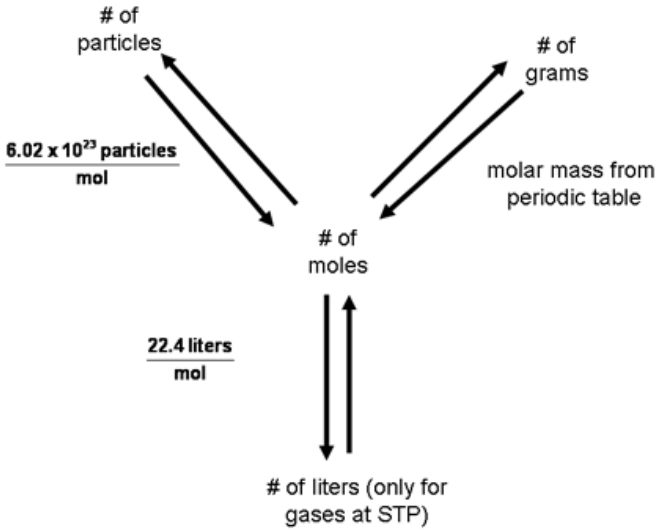
16) 1.75 g FeO = _____ mol FeO

17) 1.75 g FeO = _____ formula units of FeO

18) 7.30×10^{25} molecules of H_2O = _____ mol H_2O

19) 7.30×10^{25} molecules of H_2O = _____ g H_2O

20) 109 g Au = _____ atoms Au



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Molar Conversions Practice, Part III

Calculate the molar mass of each of the following substances.

$137.3 + 16 =$

1) BaO = 153.3 g/mol

2) Al_2S_3 = 150.3 g/mol $(27 \times 2) + (32.1 \times 3)$

$137.3 + 2 \times 14 + 6 \times 16$

3) $Ba(NO_3)_2$ = 261.3 g/mol

4) NaOH = 40.0 g/mol

$23 + 1 + 16$

5) P_4O_{10} = 284 g/mol

$(31 \times 4) + (10 \times 16) = 284$

Perform the following conversions. Show all work.

6) 50.8 g BaO = _____ mol $50.8g \times \frac{1 mol}{153.3g} = 0.331$ mol

7) 75.0 g $Ba(NO_3)_2$ = _____ mol

$75.0g\ Ba(NO_3)_2 \times \frac{1\ mol}{261.3g} = 0.287$ mol

8) 3.66×10^{-5} g P_4O_{10} = _____ mol

$3.66 \times 10^{-5} g\ P_4O_{10} \times \frac{1\ mol}{284\ g} = 1.29 \times 10^{-7}$ mol

See #2 above

9) 2.72×10^3 g Al_2S_3 = _____ mol

$2.72 \times 10^3 g \times \frac{1\ mol}{150.3\ g} = 18.1$ mol

See #4 above

10) 160.0 g NaOH = 4.00 mol

$160.0g \times \frac{1 mol}{40g} = 4 mol = 4.00 mol$

Perform the following conversions. Show all work.

11) 1.30 mol $Ca(OH)_2$ = _____ g $1.30 mol \times \frac{74.1 g}{1 mol} = 96.3$ g

12) 1.93 mol Fe = _____ g $1.93 mol \times \frac{55.85 g}{1 mol} = 108$ g

13) 0.0937 mol $C_6H_{12}O_6$ = _____ g

$0.0937 mol\ C_6H_{12}O_6 \times \frac{180 g}{1 mol} = 16.9 g$

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14)17.4 mol C_4H_{10} = 1010 g

$17.4 \text{ mol } C_4H_{10} \times \frac{58.0 \text{ g}}{1 \text{ mol}} = 1009.2$

1010 g

15)1.19 x 10^3 mol U = _____g

$1.19 \times 10^3 \text{ mol U} \times \frac{238 \text{ g}}{1 \text{ mol U}} = 2.83 \times 10^5 \text{ g}$

Perform the following conversions. Show all work.

16) 1.75 g FeO = _____ mol FeO

$1.75 \text{ g FeO} \times \frac{1 \text{ mol FeO}}{71.85 \text{ g FeO}} = 0.0244 \text{ mol}$

17)1.75 g FeO = _____ formula units of FeO

$1.75 \text{ g FeO} \times \frac{1 \text{ mol FeO}}{71.85 \text{ g FeO}} \times \frac{6.02 \times 10^{23} \text{ f.u.}}{1 \text{ mol FeO}} = 1.47 \times 10^{22} \text{ f.u.}$

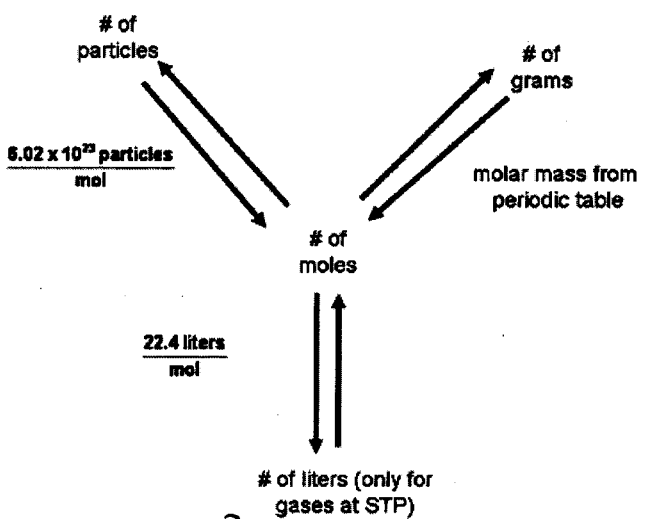
18)7.30 x 10^{25} molecules of H_2O = _____ mol H_2O

$7.30 \times 10^{25} \text{ molecules} \times \frac{1 \text{ mol}}{6.02 \times 10^{23} \text{ molecules}} = 121 \text{ mol}$

19)7.30 x 10^{25} molecules of H_2O = _____ g H_2O

$7.30 \times 10^{25} \text{ molecules} \times \frac{1 \text{ mol}}{6.02 \times 10^{23} \text{ molecules}} \times \frac{18.0 \text{ g}}{1 \text{ mol}} = 2183 = 2180 = 2.18 \times 10^3 \text{ g}$

20)109 g Au = 3.33×10^{23} atoms Au



$109 \text{ g Au} \times \frac{1 \text{ mol Au}}{197 \text{ g Au}} \times \frac{6.02 \times 10^{23} \text{ atoms Au}}{1 \text{ mol Au}} = 3.33 \times 10^{23}$