

$$1) \quad a) \quad 1 \text{ mol K} \times \frac{39.10 \text{ g}}{1 \text{ mol K}} + 1 \text{ mol Br} \times \frac{79.90 \text{ g}}{1 \text{ mol Br}} = 119.00 \text{ g/mol KBr}$$

$$b) \quad 2 \text{ mol Na} \times \frac{22.99 \text{ g}}{1 \text{ mol Na}} + 1 \text{ mol S} \times \frac{32.07 \text{ g}}{1 \text{ mol S}} + 4 \text{ mol O} \times \frac{16.00 \text{ g}}{1 \text{ mol O}} = 142.05 \text{ g/mol Na}_2\text{SO}_4$$

$$c) \quad 1 \text{ mol Pb} \times \frac{207.2 \text{ g}}{1 \text{ mol Pb}} + 2 \text{ mol N} \times \frac{14.01 \text{ g}}{1 \text{ mol N}} + 6 \text{ mol O} \times \frac{16.00 \text{ g}}{1 \text{ mol O}} = 331.2 \text{ g/mol Pb(NO}_3)_2$$

$$d) \quad 46.0696 \text{ g/mol}$$

$$e) \quad 60.0531 \text{ g/mol}$$

$$f) \quad 159.692 \text{ g/mol}$$

$$g) \quad 342.3031 \text{ g/mol}$$

$$h) \quad 342.141 \text{ g/mol}$$

$$i) \quad 1321.54 \text{ g/mol}$$

$$2) \quad a) \quad 39.9972 \text{ g/mol} \quad f) \quad 122.1250 \text{ g/mol}$$

$$b) \quad 275.749 \text{ g/mol} \quad g) \quad 180.1592 \text{ g/mol}$$

$$c) \quad 153.990 \text{ g/mol} \quad h) \quad 368.362 \text{ g/mol}$$

$$d) \quad 96.0866 \text{ g/mol} \quad i) \quad 244.28 \text{ g/mol}$$

$$e) \quad 146.347 \text{ g/mol}$$

$$3) \quad a) \quad 22.5 \text{ g Zn} \times \frac{1 \text{ mol Zn}}{65.37 \text{ g Zn}} = 0.344 \text{ mol Zn}$$

$$b) \quad 0.688 \text{ g Mg} \times \frac{1 \text{ mol Mg}}{24.312 \text{ g Mg}} = 0.0283 \text{ mol Mg}$$

$$c) \quad 4.5 \times 10^{22} \text{ atom Cu} \times \frac{1 \text{ mol Cu}}{6.022 \times 10^{23} \text{ atom Cu}} = 0.075 \text{ mol Cu}$$

$$d) \quad 382 \text{ g Co} \times \frac{1 \text{ mol Co}}{58.9332 \text{ g Co}} = 6.48 \text{ mol Co}$$

$$e) \quad 0.055 \text{ g Sn} \times \frac{1 \text{ mol Sn}}{118.69 \text{ g Sn}} = 4.6 \times 10^{-4} \text{ mol Sn}$$

$$f) \quad 8.5 \times 10^{24} \text{ molecule N}_2 \times \frac{1 \text{ mol N}_2}{6.022 \times 10^{23} \text{ molecule N}_2} \times \frac{2 \text{ mol N}}{1 \text{ mol N}_2} = 28 \text{ mol N}$$

The problem asks about ATOMS. N₂ is a molecule so you have to convert to N atoms.

$$4) \quad a) \quad 25.0 \text{ g NaOH} \times \frac{1 \text{ mol NaOH}}{39.9972 \text{ g NaOH}} = 0.625 \text{ mol NaOH}$$

$$b) \quad 44.0 \text{ g Br}_2 \times \frac{1 \text{ mol Br}_2}{159.818 \text{ g Br}_2} = 0.275 \text{ mol Br}_2$$

$$c) \quad 0.684 \text{ g MgCl}_2 \times \frac{1 \text{ mol MgCl}_2}{95.218 \text{ g MgCl}_2} = 0.00718 \text{ mol MgCl}_2$$

$$d) \quad 14.8 \text{ g CH}_3\text{OH} \times \frac{1 \text{ mol CH}_3\text{OH}}{32.0425 \text{ g CH}_3\text{OH}} = 0.462 \text{ mol CH}_3\text{OH}$$

$$e) \quad 2.88 \text{ g Na}_2\text{SO}_4 \times \frac{1 \text{ mol Na}_2\text{SO}_4}{142.038 \text{ g Na}_2\text{SO}_4} = 0.0203 \text{ mol Na}_2\text{SO}_4$$

$$f) \quad 4.20 \text{ lb ZnI}_2 \times \frac{453.59 \text{ g ZnI}_2}{1 \text{ lb ZnI}_2} \times \frac{1 \text{ mol ZnI}_2}{319.18 \text{ g ZnI}_2} = 5.97 \text{ mol ZnI}_2$$

$$5) \quad a) \quad 0.550 \text{ mol Au} \times \frac{196.967 \text{ g Au}}{1 \text{ mol Au}} = 108 \text{ g Au} \quad \text{CORRECTED!!!!}$$

$$b) \quad 15.8 \text{ mol H}_2\text{O} \times \frac{18.0153 \text{ g H}_2\text{O}}{1 \text{ mol H}_2\text{O}} = 285 \text{ g H}_2\text{O}$$

$$c) \quad 12.5 \text{ mol Cl}_2 \times \frac{70.906 \text{ g Cl}_2}{1 \text{ mol Cl}_2} = 886 \text{ g Cl}_2$$

$$d) \quad 3.15 \text{ mol NH}_4\text{NO}_3 \times \frac{80.0435 \text{ g NH}_4\text{NO}_3}{1 \text{ mol NH}_4\text{NO}_3} = 252 \text{ g NH}_4\text{NO}_3$$

$$6) \quad a) \quad 4.25 \times 10^{-4} \text{ mol H}_2\text{SO}_4 \times \frac{98.075 \text{ g H}_2\text{SO}_4}{1 \text{ mol H}_2\text{SO}_4} = 0.0417 \text{ g H}_2\text{SO}_4$$

$$b) \quad 4.50 \times 10^{22} \text{ molecule CCl}_4 \times \frac{1 \text{ mol CCl}_4}{6.022 \times 10^{23} \text{ molecule CCl}_4} \times \frac{153.823 \text{ g CCl}_4}{1 \text{ mol CCl}_4} = 11.5 \text{ g CCl}_4$$

$$c) \quad 0.00255 \text{ mol Ti} \times \frac{47.90 \text{ g Ti}}{1 \text{ mol Ti}} = 0.122 \text{ g Ti}$$

$$d) \quad 1.5 \times 10^{16} \text{ atom S} \times \frac{1 \text{ mol S}}{6.022 \times 10^{23} \text{ atom S}} \times \frac{32.064 \text{ g S}}{1 \text{ mol S}} = 8.0 \times 10^{-7} \text{ g S}$$

$$7) \quad a) \quad 1.26 \text{ mol O}_2 \times \frac{6.022 \times 10^{23} \text{ molecule O}_2}{1 \text{ mol O}_2} = 7.59 \times 10^{23} \text{ molecule O}_2$$

$$b) \quad 0.56 \text{ mol C}_6\text{H}_6 \times \frac{6.022 \times 10^{23} \text{ molecule C}_6\text{H}_6}{1 \text{ mol C}_6\text{H}_6} = 3.4 \times 10^{23} \text{ molecule C}_6\text{H}_6$$

$$c) \quad 16.0 \text{ g CH}_4 \times \frac{1 \text{ mol CH}_4}{16.0431 \text{ g CH}_4} \times \frac{6.022 \times 10^{23} \text{ molecules CH}_4}{1 \text{ mol CH}_4} = 6.01 \times 10^{23} \text{ molecules CH}_4$$

$$d) \quad 1000. \text{ g HCl} \times \frac{1 \text{ mol HCl}}{36.461 \text{ g HCl}} \times \frac{6.022 \times 10^{23} \text{ molecules HCl}}{1 \text{ mol HCl}} = 1.652 \times 10^{25} \text{ molecules HCl}$$

$$8) \quad a) \quad 1.75 \text{ mol Cl}_2 \times \frac{6.022 \times 10^{23} \text{ molecule Cl}_2}{1 \text{ mol Cl}_2} = 1.05 \times 10^{24} \text{ molecule Cl}_2$$

$$b) \quad 0.27 \text{ mol C}_2\text{H}_6\text{O} \times \frac{6.022 \times 10^{23} \text{ molecule C}_2\text{H}_6\text{O}}{1 \text{ mol C}_2\text{H}_6\text{O}} = 1.6 \times 10^{23} \text{ molecule C}_2\text{H}_6\text{O}$$

$$c) \quad 12.0 \text{ g CO}_2 \times \frac{1 \text{ mol CO}_2}{44.0100 \text{ g CO}_2} \times \frac{6.022 \times 10^{23} \text{ molecules CO}_2}{1 \text{ mol CO}_2} = 1.64 \times 10^{23} \text{ molecules CO}_2$$

$$d) \quad 1000. \text{ g CH}_4 \times \frac{1 \text{ mol CH}_4}{16.0431 \text{ g CH}_4} \times \frac{6.022 \times 10^{23} \text{ molecules CH}_4}{1 \text{ mol CH}_4} = 3.754 \times 10^{25} \text{ molecules CH}_4$$

$$9) \quad a) \quad 1 \text{ molecule C}_2\text{H}_5\text{OH} = 2 \text{ atoms C} + 6 \text{ atoms H} + 1 \text{ atom O} = 9 \text{ total atoms}$$

$$11 \text{ molecule C}_2\text{H}_5\text{OH} \times \frac{9 \text{ atoms total}}{1 \text{ molecule C}_2\text{H}_5\text{OH}} = 99 \text{ atoms total}$$

$$b) \quad 25.0 \text{ g Ag} \times \frac{1 \text{ mol Ag}}{107.870 \text{ g Ag}} \times \frac{6.022 \times 10^{23} \text{ atom Ag}}{1 \text{ mol Ag}} = 1.40 \times 10^{23} \text{ atom Ag}$$

$$c) \quad 0.0986 \text{ g Xe} \times \frac{1 \text{ mol Xe}}{131.60 \text{ g Xe}} \times \frac{6.022 \times 10^{23} \text{ atom Xe}}{1 \text{ mol Xe}} = 4.51 \times 10^{20} \text{ atom Xe}$$

$$d) \quad 1 \text{ molecule CHCl}_3 = 1 \text{ atoms C} + 1 \text{ atoms H} + 3 \text{ atom Cl} = 5 \text{ total atoms}$$

$$72.5 \text{ g CHCl}_3 \times \frac{1 \text{ mol CHCl}_3}{119.378 \text{ g CHCl}_3} \times \frac{6.022 \times 10^{23} \text{ molecule CHCl}_3}{1 \text{ mol CHCl}_3} \times \frac{5 \text{ atom total}}{1 \text{ molecule CHCl}_3} = 1.83 \times 10^{24} \text{ atom total}$$

$$10) \quad a) \quad 1 \text{ molecule N}_2\text{O}_5 = 2 \text{ atoms N} + 5 \text{ atoms O} = 7 \text{ total atoms}$$

$$18 \text{ molecule N}_2\text{O}_5 \times \frac{7 \text{ atoms total}}{1 \text{ molecule N}_2\text{O}_5} = 126 \text{ atoms total}$$

$$b) \quad 10.0 \text{ mol Au} \times \frac{6.022 \times 10^{23} \text{ atom Au}}{1 \text{ mol Au}} = 6.02 \times 10^{24} \text{ atom Au}$$

$$c) \quad 1 \text{ molecule BF}_3 = 1 \text{ atoms B} + 3 \text{ atoms F} = 4 \text{ total atoms}$$

$$75.2 \text{ g BF}_3 \times \frac{1 \text{ mol BF}_3}{67.806 \text{ g BF}_3} \times \frac{6.022 \times 10^{23} \text{ molecule BF}_3}{1 \text{ mol BF}_3} \times \frac{4 \text{ atom total}}{1 \text{ molecule BF}_3} = 6.68 \times 10^{23} \text{ atom total}$$

$$d) \quad 0.0986 \text{ g Xe} \times \frac{1 \text{ mol Xe}}{131.60 \text{ g Xe}} \times \frac{6.022 \times 10^{23} \text{ atom Xe}}{1 \text{ mol Xe}} = 4.51 \times 10^{20} \text{ atom Xe}$$

$$11) \quad a) \quad 8.66 \text{ mol Cu} \times \frac{63.54 \text{ g Cu}}{1 \text{ mol Cu}} = 550. \text{ g Cu}$$

$$b) \quad 125 \text{ mol Au} \times \frac{196.967 \text{ g Au}}{1 \text{ mol Au}} \times \frac{1 \text{ kg Au}}{1 \times 10^3 \text{ g Au}} = 246 \text{ kg Au}$$

$$c) \quad 10. \text{ atom C} \times \frac{1 \text{ mol C}}{6.022 \times 10^{23} \text{ atom C}} = 1.661 \times 10^{-23} \text{ mol C}$$

You can't have a fraction of an atom, so the decimal point implies that you have EXACTLY 10

$$d) \quad 5000 \text{ molecule CO}_2 \times \frac{1 \text{ mol CO}_2}{6.022 \times 10^{23} \text{ molecule CO}_2} = 8 \times 10^{-21} \text{ mol CO}_2$$

$$12) \quad a) \quad 284 \text{ g S} \times \frac{1 \text{ mol S}}{32.064 \text{ g S}} = 8.86 \text{ mol S}$$

$$b) \quad 2.50 \text{ kg NaCl} \times \frac{1 \times 10^3 \text{ g NaCl}}{1 \text{ kg NaCl}} \times \frac{1 \text{ mol NaCl}}{58.443 \text{ g NaCl}} = 42.8 \text{ mol NaCl}$$

$$c) \quad 42.4 \text{ g Mg} \times \frac{1 \text{ mol Mg}}{24.312 \text{ g Mg}} \times \frac{6.022 \times 10^{23} \text{ atom Mg}}{1 \text{ mol Mg}} = 1.05 \times 10^{24} \text{ atom Mg}$$

$$d) \quad 485 \text{ mL Br}_2 \times \frac{3.12 \text{ g Br}_2}{1 \text{ mL Br}_2} \times \frac{1 \text{ mol Br}_2}{159.818 \text{ g Br}_2} = 9.47 \text{ mol Br}_2$$

$$13) \quad a) \quad 1 \text{ mol CS}_2 \times \frac{6.022 \times 10^{23} \text{ molecule CS}_2}{1 \text{ mol CS}_2} = 6.022 \times 10^{23} \text{ molecule CS}_2$$

$$b) \quad 1 \text{ mol CS}_2 \times \frac{1 \text{ mol C}}{1 \text{ mol CS}_2} \times \frac{6.022 \times 10^{23} \text{ atom C}}{1 \text{ mol C}} = 6.022 \times 10^{23} \text{ atom C}$$

$$c) \quad 1 \text{ mol CS}_2 \times \frac{2 \text{ mol S}}{1 \text{ mol CS}_2} \times \frac{6.022 \times 10^{23} \text{ atom S}}{1 \text{ mol S}} = 1.204 \times 10^{24} \text{ atom S}$$

$$d) \quad 1.204 \times 10^{24} + 0.6022 \times 10^{24} + 0.6022 \times 10^{24} = 1.807 \times 10^{24} \text{ total atoms}$$

$$14) \quad a) \quad 1 \text{ mol NH}_4\text{NO}_3 \times \frac{6.022 \times 10^{23} \text{ molecule NH}_4\text{NO}_3}{1 \text{ mol NH}_4\text{NO}_3} = 6.022 \times 10^{23} \text{ molecule NH}_4\text{NO}_3$$

$$b) \quad 1 \text{ mol NH}_4\text{NO}_3 \times \frac{2 \text{ mol N}}{1 \text{ mol NH}_4\text{NO}_3} \times \frac{6.022 \times 10^{23} \text{ atom N}}{1 \text{ mol N}} = 1.204 \times 10^{24} \text{ atom N}$$

$$c) \quad 1 \text{ mol NH}_4\text{NO}_3 \times \frac{4 \text{ mol H}}{1 \text{ mol NH}_4\text{NO}_3} \times \frac{6.022 \times 10^{23} \text{ atom H}}{1 \text{ mol H}} = 2.409 \times 10^{24} \text{ atom H}$$

$$d) \quad 1 \text{ mol NH}_4\text{NO}_3 \times \frac{3 \text{ mol O}}{1 \text{ mol NH}_4\text{NO}_3} \times \frac{6.022 \times 10^{23} \text{ atom O}}{1 \text{ mol O}} = 1.807 \times 10^{24} \text{ atom O}$$

$$e) \quad 1.204 \times 10^{24} + 2.409 \times 10^{24} + 1.807 \times 10^{24} = 5.420 \times 10^{24} \text{ total atoms}$$

- 15) a) $16.0 \text{ g O}_2 \times \frac{1 \text{ mol O}_2}{31.9988 \text{ g O}_2} \times \frac{2 \text{ mol O}}{1 \text{ mol O}_2} \times \frac{6.022 \times 10^{23} \text{ atom O}}{1 \text{ mol O}} = 6.02 \times 10^{23} \text{ atom O}$
- b) $0.622 \text{ mol MgO} \times \frac{1 \text{ mol O}}{1 \text{ mol MgO}} \times \frac{6.022 \times 10^{23} \text{ atom O}}{1 \text{ mol O}} = 3.75 \times 10^{23} \text{ atom O}$
- c) $6.00 \times 10^{22} \text{ molecule C}_6\text{H}_{12}\text{O}_6 \times \frac{6 \text{ atom O}}{1 \text{ molecule C}_6\text{H}_{12}\text{O}_6} = 3.60 \times 10^{23} \text{ atom O}$
- 16) a) $5.0 \text{ mol MnO}_2 \times \frac{6.022 \times 10^{23} \text{ mol MnO}_2}{1 \text{ MnO}_2} \times \frac{3 \text{ atom total}}{1 \text{ mol MnO}_2} = 9.0 \times 10^{24} \text{ atom total}$
- b) $255 \text{ g MgCO}_3 \times \frac{1 \text{ mol MgCO}_3}{84.321 \text{ g MgCO}_3} \times \frac{6.022 \times 10^{23} \text{ molecule MgCO}_3}{1 \text{ mol MgCO}_3} \times \frac{5 \text{ atom total}}{1 \text{ molecule MgCO}_3} = 9.11 \times 10^{24} \text{ atom total}$
- c) $5.0 \times 10^{18} \text{ molecule H}_2\text{O} \times \frac{3 \text{ atom total}}{1 \text{ molecule H}_2\text{O}} = 1.5 \times 10^{19} \text{ atom total}$
- 17) a) $25.0 \text{ g AgBr} \times \frac{1 \text{ mol AgBr}}{187.779 \text{ g AgBr}} \times \frac{1 \text{ mol Ag}}{1 \text{ mol AgBr}} \times \frac{107.870 \text{ g Ag}}{1 \text{ mol Ag}} = 14.4 \text{ g Ag}$
- b) $6.34 \text{ g (NH}_4)_3\text{PO}_4 \times \frac{1 \text{ mol (NH}_4)_3\text{PO}_4}{149.0871 \text{ g (NH}_4)_3\text{PO}_4} \times \frac{3 \text{ mol N}}{1 \text{ mol (NH}_4)_3\text{PO}_4} \times \frac{14.0067 \text{ g N}}{1 \text{ mol N}} = 1.79 \text{ g N}$
- c) $8.45 \times 10^{22} \text{ molecule SO}_3 \times \frac{1 \text{ mol SO}_3}{6.022 \times 10^{23} \text{ molecule SO}_3} \times \frac{3 \text{ mol O}}{1 \text{ mol SO}_3} \times \frac{15.9994 \text{ g O}}{1 \text{ mol O}} = 6.74 \text{ g O}$
- 18) a) $5.0 \text{ g PbCl}_2 \times \frac{1 \text{ mol PbCl}_2}{278.10 \text{ g PbCl}_2} \times \frac{2 \text{ mol Cl}}{1 \text{ mol PbCl}_2} \times \frac{35.453 \text{ g Cl}}{1 \text{ mol Cl}} = 1.3 \text{ g Cl}$
- b) $4.50 \text{ mol H}_2\text{SO}_4 \times \frac{2 \text{ mol H}}{1 \text{ mol H}_2\text{SO}_4} \times \frac{1.00797 \text{ g H}}{1 \text{ mol H}} = 9.07 \text{ g H}$
- c) $5.45 \times 10^{22} \text{ molecule NH}_3 \times \frac{1 \text{ mol NH}_3}{6.022 \times 10^{23} \text{ molecule NH}_3} \times \frac{3 \text{ mol H}}{1 \text{ mol NH}_3} \times \frac{1.00797 \text{ g H}}{1 \text{ mol H}} = 0.274 \text{ g H}$
- 19) a) $67.33 \text{ mL C}_2\text{H}_5\text{OH} \times \frac{1 \text{ cm}^3 \text{ C}_2\text{H}_5\text{OH}}{1 \text{ mL C}_2\text{H}_5\text{OH}} \times \frac{0.789 \text{ g C}_2\text{H}_5\text{OH}}{1 \text{ cm}^3 \text{ C}_2\text{H}_5\text{OH}} \times \frac{1 \text{ mol C}_2\text{H}_5\text{OH}}{46.0696 \text{ g C}_2\text{H}_5\text{OH}} \times \frac{2 \text{ mol C}}{1 \text{ mol C}_2\text{H}_5\text{OH}} \times \frac{12.0112 \text{ g C}}{1 \text{ mol C}} = 27.7 \text{ g C}$
- b) $3.35 \times 10^{25} \text{ atom Cl} \times \frac{1 \text{ mol Cl}}{6.022 \times 10^{23} \text{ atom Cl}} \times \frac{1 \text{ mol CCl}_4}{4 \text{ mol Cl}} \times \frac{153.823 \text{ g CCl}_4}{1 \text{ mol CCl}_4} \times \frac{1 \text{ mL CCl}_4}{1.5842 \text{ g CCl}_4} \times \frac{1 \times 10^{-3} \text{ L CCl}_4}{1 \text{ mL CCl}_4} = 1.35 \text{ L CCl}_4$
- c) $9.662 \times 10^{20} \text{ molecule Hg(BrO}_4)_2 \times \frac{8 \text{ atoms O}}{1 \text{ molecule Hg(BrO}_4)_2} = 7.730 \times 10^{21} \text{ atoms O}$
- d) $0.04417 \text{ g (NH}_4)_2\text{SO}_4 \times \frac{1 \text{ mol (NH}_4)_2\text{SO}_4}{132.136 \text{ g (NH}_4)_2\text{SO}_4} \times \frac{2 \text{ mol N}}{1 \text{ mol (NH}_4)_2\text{SO}_4} \times \frac{14.0067 \text{ g N}}{1 \text{ mol N}} = 9.364 \times 10^{-3} \text{ g N}$
- e) $6.77 \text{ g (Hg}_2)_3(\text{PO}_4)_2 \times \frac{1 \text{ mol (Hg}_2)_3(\text{PO}_4)_2}{1393.48 \text{ g (Hg}_2)_3(\text{PO}_4)_2} \times \frac{6 \text{ mol Hg}}{1 \text{ mol (Hg}_2)_3(\text{PO}_4)_2} = 0.0292 \text{ mol Hg}$
- f) $34 \text{ g Sb(C}_2\text{H}_3\text{O}_2)_5 \times \frac{1 \text{ mol Sb(C}_2\text{H}_3\text{O}_2)_5}{416.98 \text{ g Sb(C}_2\text{H}_3\text{O}_2)_5} \times \frac{10 \text{ mol O}}{1 \text{ mol Sb(C}_2\text{H}_3\text{O}_2)_5} \times \frac{15.9994 \text{ g O}}{1 \text{ mol O}} = 13 \text{ g O}$
- 20) a) $\text{Sr(MnO}_4)_2 \quad 2.45 \text{ g O} \times \frac{1 \text{ mol O}}{15.9994 \text{ g O}} \times \frac{1 \text{ mol Mn}}{4 \text{ mol O}} \times \frac{54.9380 \text{ g Mn}}{1 \text{ mol Mn}} = 2.10 \text{ g Mn}$
- b) $\text{P}_2\text{Cl}_5 \quad 62.13 \text{ g P} \times \frac{1 \text{ mol P}}{30.9738 \text{ g P}} \times \frac{5 \text{ mol Cl}}{2 \text{ mol P}} \times \frac{35.453 \text{ g Cl}}{1 \text{ mol Cl}} = 177.8 \text{ g Cl}$
- c) $\text{Cr}_2(\text{CO}_3)_3 \quad 0.098 \text{ g C} \times \frac{1 \text{ mol C}}{12.0112 \text{ g C}} \times \frac{2 \text{ mol Cr}}{3 \text{ mol C}} \times \frac{6.022 \times 10^{23} \text{ atom Cr}}{1 \text{ mol Cr}} = 3.3 \times 10^{21} \text{ atom Cr}$
- d) $\text{Ni}_3(\text{AsO}_4)_2 \quad 371.02 \text{ g Ni} \times \frac{1 \text{ mol Ni}}{58.71 \text{ g Ni}} \times \frac{2 \text{ mol As}}{3 \text{ mol Ni}} \times \frac{74.9216 \text{ g As}}{1 \text{ mol As}} = 0.05623 \text{ g As}$