1. What conversion factor is used to convert from moles of one substance to moles of another substance?
   1. Molar mass
   2. Avogadro’s number
   3. Mole ratio
   4. The mass of 1 mole
   5. Density
2. What conversion factor is used to change grams of a substance to moles of the same substance?
   1. Mole ratio
   2. Avogadro’s number
   3. Molar mass
   4. Formula unit
   5. Density
3. What is the mole ratio of oxygen to water in the balanced chemical equation:

C7H16 + 11 O2 🡪 7 CO2 + 8 H2O

1. 11:8
2. 8:11
3. 1:11
4. 7:8
5. 11:1
6. Which conversion factor would change moles of AgNO3 to mass?
7. How many moles of diphosphorus pentoxide can be made from 1.23 moles of oxygen gas?

P4 + 5 O2 🡪 2 P2O5

* 1. 2.46 mol
  2. 3.08 mol
  3. 1.23 mol
  4. 0.492 mol
  5. 0.615 mol

1. How many moles of water can be made from 2.30 grams of oxygen gas and excess hydrogen gas?
   1. 0.144 mol
   2. 0.288 mol
   3. 2.59 mol
   4. 0.0719 mol
   5. 36.8 mol
2. How many grams of bromine can be made from 115 grams of sodium bromide?

2 NaBr + Cl2 🡪 2 NaCl + Br2

* 1. 0.559 grams
  2. 317 grams
  3. 158 grams
  4. 89.3 grams
  5. 57.5 grams

1. Manganese(IV) oxide reacts with aluminum to form elemental manganese and aluminum oxide:

3 MnO2 + 4 Al 🡪 3 Mn + 2 Al2O3

What mass of Al is needed to completely react with 25.0 grams of MnO2?

* 1. 7.76 grams
  2. 5.82 grams
  3. 33.3 grams
  4. 10.3 grams

1. How many grams of iron can be produced from 10.5 grams of aluminum? (Hint—what do you need to check before you do mole conversions?)

Al + FeO 🡪 Al2O3 + Fe

* 1. 14.5 grams
  2. 32.6 grams
  3. 21.7 grams
  4. 0.584 grams

1. How many grams of hydrogen gas are needed to completely react with 4.33 moles of nitrogen gas?

N2 + H2 🡪 NH3

* 1. 2.92 grams
  2. 8.75 grams
  3. 26.2 grams
  4. 13.1 grams