Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ UGA myID \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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