Stoichiometry Practice, Part I

1. The balanced equation $P_4(s) + 6H_2(g) \rightarrow 4PH_3(g)$ tells us that 2 mol H_2

   [A] produces 4 mol PH_3 [B] produces 2 mol PH_3 [C] reacts with 2 mol P_4

   [D] reacts with 1 mol P_4 [E] cannot react with phosphorus

2. The equation $N_2(g) + 3H_2(g) \rightarrow 2NH_3(g)$ can be interpreted by saying that 1 mol of N_2 reacts with 3 mol of H_2 to form 2 mol of NH_3.

   [A] True [B] False

3. The balanced equation $2Cu(s) + O_2(g) \rightarrow 2CuO(s)$ tells us that 1 mol of Cu

   [A] produces 1 mol of CuO [B] must react with 32 g of O_2

   [C] cannot react with oxygen [D] reacts with 1 mol of O_2

   [E] produces 2 mol of CuO

4. An excess of Al and 6.0 mol of Br_2 are reacted according to the equation
   $2Al + 3Br_2 \rightarrow 2AlBr_3$
   How many moles of $AlBr_3$ will be formed assuming 100% yield?

   [A] 8.0 mol [B] 2.0 mol [C] 4.0 mol [D] 6.0 mol [E] 3.0 mol

5. The rusting of iron is represented by the equation $4Fe + 3O_2 \rightarrow 2Fe_2O_3$. If you have a 1.50-mol sample of iron, how many moles of Fe_2O_3 will there be after the iron has rusted completely?

   [A] 2.0 mol [B] 0.50 mol [C] 0.75 mol [D] 1.50 mol [E] 1.0 mol

6. For the reaction
   $C_2H_4(g) + 3O_2(g) \rightarrow 2CO_2(g) + 2H_2O(g)$
   if 6.0 mol of CO_2 are produced, how many moles of O_2 were reacted?

   [A] 15.0 mol [B] 9.0 mol [C] 7.5 mol [D] 4.0 mol [E] none of these

7. A 3.0-mol sample of $KClO_3$ was decomposed according to the equation
   $2KClO_3(s) \rightarrow 2KCl(s) + 3O_2(g)$
   How many moles of O_2 are formed assuming 100% yield?

   [A] 3.0 mol [B] 4.0 mol [C] 2.0 mol [D] 2.5 mol [E] 4.5 mol

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8. The equation for a reaction should be balanced before doing stoichiometric calculations.

   [A] True [B] False

9. Refer to the following equation:

   $4NH_3(g) + 7O_2(g) \rightarrow 4NO_2(g) + 6H_2O(g)$

   How many moles of ammonia will be required to produce 10.0 mol of water?

   [A] 6.67 mol [B] 4.00 mol [C] 5.00 mol [D] 10.0 mol [E] none of these