

Name _____

Date _____

Due Date _____

KEY

Mark _____

36/36

Correct and Hand in Again by _____

Chemistry 12**#2****Hand In Assignment—Reaction Rates**

This Assignment will be marked and you are allowed to do one set of corrections.

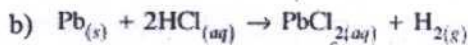
1. Given the reaction: $2\text{H}_{2(g)} + \text{O}_{2(g)} \rightarrow 2\text{H}_2\text{O}_{(l)}$ explain why this reaction is very slow at room temperature. (1 mark)

① $\text{H}-\text{H}$ $\text{O}=\text{O}$ - covalent bonds in diatomic H_2 and O_2 molecules have to be broken.

2. Given the reaction: $\text{CH}_{4(g)} + 2\text{O}_{2(g)} \rightarrow \text{CO}_{2(g)} + 2\text{H}_2\text{O}_{(g)}$, explain why this reaction is very slow at room temperature. (1 mark)

① covalent bonds in CH_4 $\text{H}-\text{C}-\text{H}$ strong and in O_2 hard to break H

3. Given the reactions: a) $2\text{Ag}^+_{(aq)} + \text{CrO}_4^{2-}_{(aq)} \rightarrow \text{Ag}_2\text{CrO}_{4(s)}$ and



① Which reaction would be faster at room temperature? a (1 mark)
Explain your answer. (1 mark)

① both reactants are (aq) and no bonds to break
in (b) Pb is solid. rx. takes place only on the surface of Pb.

4. Given the reaction: $\text{N}_{2(g)} + 3\text{H}_{2(g)} \rightarrow 2\text{NH}_{3(g)}$

If the rate of formation of NH_3 is 8.0×10^{-3} mol/s, calculate the rate of consumption of H_2 in mol/s. (2 marks)

② $8.0 \times 10^{-3} \frac{\text{mol NH}_3}{\text{s}} \times \frac{3 \text{ mol H}_2}{2 \text{ mol NH}_3} = 0.012 \text{ mol H}_2/\text{s}$

③ 6/6

Answer 0.012 mol/s
 $(1.2 \times 10^{-2} \text{ mol/s})$