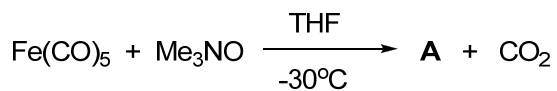


**Organometallic Chemistry**

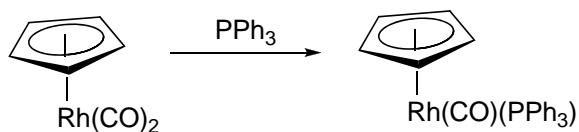
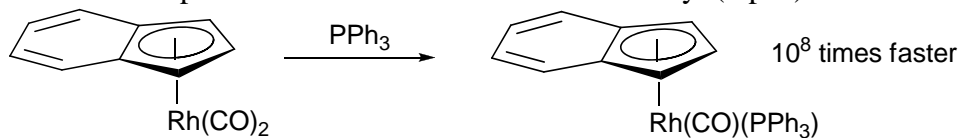
Name: \_\_\_\_\_

**Problem Set #3**

Due: Oct. 3, 2008

1. Identify **A** and propose a mechanism for its formation. (4 pts.)Data for compound **A**: $m/z (M^+) = 227$ IR ( $\text{cm}^{-1}$ ): 2050, 1960, 1940-1920 $^1\text{H NMR } (\delta)$ : 1.87 (s) $^{13}\text{C NMR } (\delta)$ : 217.5, 61.4

2.  $(\eta^5\text{-Cp})\text{Rh}(\text{CO})_2$  and  $(\eta^5\text{-indenyl})\text{Rh}(\text{CO})_2$  undergo substitution by an associative pathway. The rate for the indenyl complex is  $\sim 10^8$  times greater than for the Cp complex. Provide an explanation for this difference in reactivity. (4 pts.)



3. Which of the following complexes will have the *highest*  $\nu_{\text{CO}}$  stretching frequency in the IR? Why? (3 pts. each)

