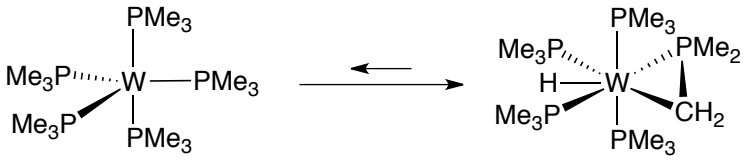
CHEM-457 (S14)
Problem Set 6

1. Miessler, Fischer and Tarr #12.1, 12.3, 12.5, 12.8, 12.13, 12.18, 12.22, 13.12, 13.13, and 13.15

2. $W(PMe_3)_5$ can exist in the two forms shown below. Provide a rationale for why the structure on the right is favored.



3. Schwartz's reagent, $Cp_2ZrH(Cl)$, has found considerable use in synthetic chemistry, primarily due to several unique and useful properties of the zirconium reagent and organometallic complexes that it forms.

   (a) Show the 1,2-insertion product of Schwartz's reagent with 1-pentene.

   (b) Alkyl-zirconium complexes, such as the product in part (a), are unusual stable. Why do you think the alkyl-zirconium complex of part (a) is more stable than other alkyl-metal complexes?