**In-Class Activity**

Predicting Reactivity with the HSAB Principle

1. 3FeO +Fe2S3 ⇌ Fe2O3 + 3 FeS
2. For the above reaction, divide each compound into a Lewis acid and a Lewis base.
3. Label each acid and base as hard, soft, or borderline.
4. Predict whether the reactants or products will be favored. Explain.
5. Zn(SCH3)2 + Hg(SeCH3)2 ⇌ Hg(SCH3)2 + Zn(SeCH3)2
6. For the above reaction, divide each compound into a Lewis acid and a Lewis base. For the Lewis bases, indicate which atom will be the electron pair donor.
7. Label each acid and base as hard, soft, or borderline.
8. Predict whether the reactants or products will be favored. Explain.