Week 7 Worksheet

Topics Covered:
- Oxidation-Reduction Reactions
- Reducing Agents
  - Catalytic Hydrogenation

1. Classify each reaction as oxidation, reduction, or neither.

   a.
   
   ![Chemical structure](image)

   b.
   
   ![Chemical structure](image)
c.

\[
\text{Ar-CH}_3 \quad \rightarrow \quad \text{Ar-COOH}
\]


d.

\[
\text{C}_7\text{H}_8 \quad \rightarrow \quad \text{C}_7\text{H}_9\text{Cl}
\]

(Smith 5th ed. Problem 12.1)
2. Draw all alkenes that react with one equivalent of H₂ in the presence of a palladium catalyst to form each alkane. Consider constitutional isomers only.

a. 

b. 

c. 

(Smith 6th Ed., Question 12.3)
3. Draw the products of each reaction.

a. 

\[
\text{Cl} \quad \xrightarrow{1. \text{ LiAlH}_4} \quad 2. \text{ H}_2\text{O}
\]

b. 

\[
\quad \xrightarrow{1. \text{ LiAlH}_4} \quad 2. \text{ H}_2\text{O}
\]

(Smith 5th ed. Problem 12.14)