- a. Perform a retrosynthetic analysis for the conversions below.
- b. Draw each synthesis in the forward direction.

1. 
$$\frac{1}{1}$$
  $\frac{1}{1}$   $\frac$ 

2. 
$$CH_3$$
  $CH_3$   $CH_3$ 

3. H 
$$\frac{1. \text{ NaNH}_2}{2. 2}$$
  $\frac{1. \text{ NaNH}_2}{2. 2}$   $\frac{1. \text{ NaNH}_2}{2. 2}$   $\frac{1. \text{ NaNH}_2}{2. 2}$ 

4. OH 
$$\longrightarrow$$
 OH  $\longrightarrow$  Hr  $\longrightarrow$  OH  $\longrightarrow$  Hr  $\longrightarrow$  OH  $\longrightarrow$  OH  $\longrightarrow$  OTS  $\longrightarrow$  OH  $\longrightarrow$  OH  $\longrightarrow$  OH  $\longrightarrow$  OTS  $\longrightarrow$  OH  $\longrightarrow$  OH