Reaction List - Ch 14 Formation of Alcohols

By substitution of an alkyl halide:

$$S_N 2:$$
 $NaOH$ OH 1^o $alcohol$

By addition to an alkene:

acid-catalyzed addition of water:
$$\frac{H_2SO_4}{H_2O} \underbrace{}_{:OH} 2^o \ or \ 3^o \ alcohol$$
 oxymercuration-reduction:
$$\frac{1. \ Hg(OAc)_2, H_2O}{2. \ NaBH_4} \underbrace{}_{:OH} 2^o \ or \ 3^o \ alcohol$$
 hydroboration-oxidation:
$$\frac{1. \ BH_3\text{-}THF}{2. \ H_2O_2, \ NaOH} \underbrace{}_{:OH} 1^o \ or \ 2^o \ alcohol$$

By reduction of a C=O:

By addition to a C=O:

formaldehyde:
$$H$$
 H O : H O : H

aldehyde:
$$\begin{array}{c} \vdots \circ \vdots \\ H \end{array} \xrightarrow{\text{MgBr}} \text{ or } \begin{array}{c} \vdots \circ H \\ \hline 2. \ H_3 O^+ \end{array} \xrightarrow{\text{2}^o \ alcohol} \\ \end{array}$$