Provide synthetic routes to the following compounds. All reagents and intermediates should be indicated.

a)

\[
\text{ } \xrightarrow{\text{ }} \text{ }
\]

Note: The "\( \xrightarrow{\text{ }} \)" symbol indicates that more than one step is required.

b)

\[
\text{ } \xrightarrow{\text{ }} \text{ }
\]

Note: A squiggly line indicates that both stereochemical configurations are present.

c)

\[
\text{ } \xrightarrow{\text{ }} \text{ }
\]

+d)

\[
\text{ } \xrightarrow{\text{ }} \text{ }
\]

e)

\[
\text{ } \xrightarrow{\text{ }} \text{ }
\]

* Make sure you think about each functional group in the molecule when you perform each step.