1. The sex attractant of the common housefly (*Musca domestica*) is a compound called muscalure. Muscalure is (Z)-CH$_3$(CH$_2$)$_{12}$CH=CH(CH$_2$)$_7$CH$_3$. Starting with ethyne and any other needed reagents, outline a possible synthesis of muscalure.

2. Starting with ethyne and 1-bromopentane as your only organic reagents (except for solvents) and using any needed inorganic compounds, outline a synthesis of the compound shown below.

![Diagram of the compound with two Br groups attached]