Synthesis Problem Solving

Problem (from last time)

- Form small groups (2-3 people)
- Devise two syntheses for *meso*-2,3-butanediol starting with acetylene (ethyne) and methane. Your two pathways should take different approaches during the course of the reactions for controlling the origin of the stereochemistry required in the product.

Problem 2

- Synthesize [3S,4R]-1-cyclohexyl-3,4-dibromopentane and its enantiomer using ethyne, 1-chloro-2-cyclohexylethane and bromomethane as your sole carbon sources
  - Perform a retrosynthetic analysis considering:
    - stereospecificity of reactions chosen
    - correspondence between starting material atoms and product atoms
  - Draw forward synthesis with appropriate reagents
- Explain why racemic mixture results
- What modifications could make (3R,4R) and (3S,4S) instead?

Problem 3

- Synthesize the molecule below using methylcyclopentane and 2-methylpropane as your sole carbon sources