1. Consider the molecule 2,3-dimethylbutane (4 points)

a. Draw Newman projections (looking down the C2-C3 bond) of the three staggered conformations. Label them A, B, and C.

b. Which staggered conformation(s) is/are expected to be lowest in energy and why?

  C is the lowest in energy because it has fewer unfavorable gauche interactions than A, B.

c. Draw a Newman projection representing the highest-energy eclipsed conformation.

2. Draw the chair conformation depicted in this Newman projection. (1 point)
3. Does this alkene have the E or Z configuration?

4. Draw the chair conformations of the molecule shown below. Indicate if they are the same in energy or if one is lower in energy (if so, indicate which is lower in energy and why). (4 points)

There is a greater energy penalty for the isopropyl group in the axial position than the methyl group.