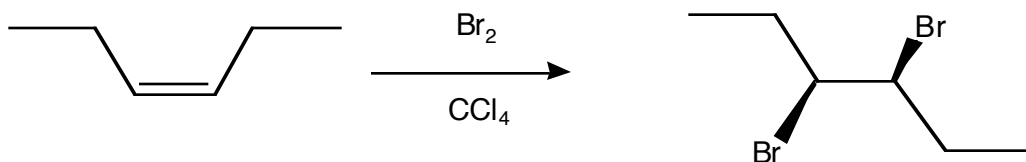


Problem 90, Chemistry 301X, 2006

(a)



There are two apparent contradictions in the reaction shown above:

1. Hasn't there been a syn addition? I thought addition of Br_2 was always trans (anti).
2. As shown, the product is optically active. As the starting materials are achiral, such a result is, of course, impossible. Please explain.

(b) Which 3,4-dimethyl-3-hexene (*E* or *Z*) would you use as starting material for the following reaction?

