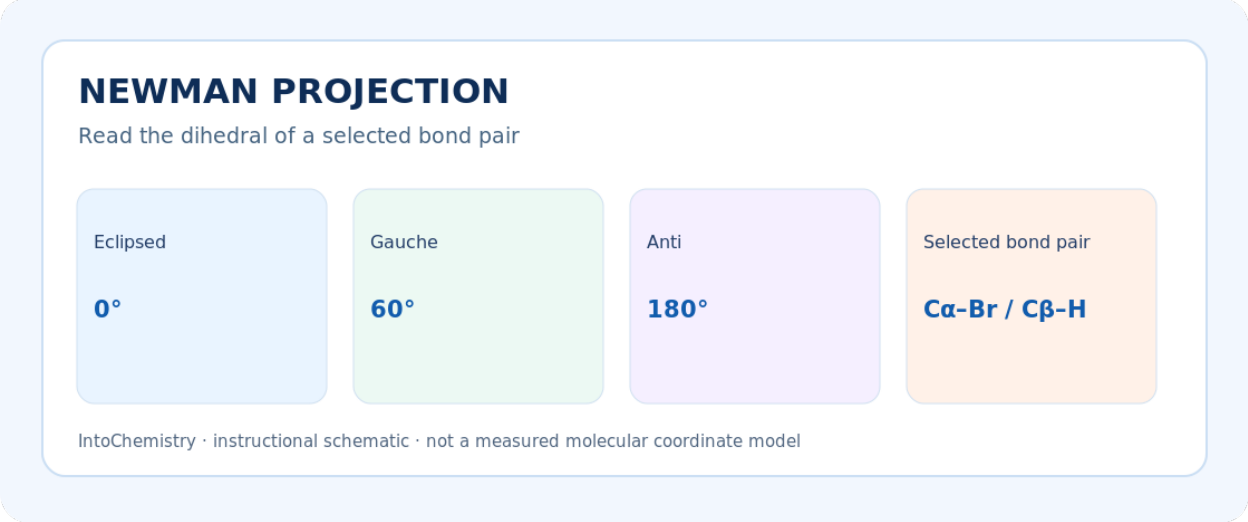
Newman Projections & Dihedral Angles — Practice Worksheet

Name: _____ **Date:** _____

Skills: Interpret Newman projections and connect torsional geometry to elimination.



Directions: Answer every question. Include a quick labeled sketch or your reasoning when asked. Show chair positions and up/down directions separately.

1. Looking down the Cα–Cβ bond: front Cα–Br and rear Cβ–H have a signed dihedral of 180°. This is an illustrative rotation, not a prediction of their equilibrium population. Is this drawn conformer suitably aligned for the preferred E2 pathway?

2. Looking down the Cα–Cβ bond: front Cα–Br and rear Cβ–H have a signed dihedral of 60°. This is an illustrative rotation, not a prediction of their equilibrium population. Is this drawn conformer suitably aligned for the preferred E2 pathway?

3. Looking down the Cα–Cβ bond: front Cα–Br and rear Cβ–H have a signed dihedral of 0°. This is an illustrative rotation, not a prediction of their equilibrium population. Is this drawn conformer suitably aligned for the preferred E2 pathway?

4. Looking down the Cα–Cβ bond: front Cα–Br and rear Cβ–H have a signed dihedral of -60°. This is an illustrative rotation, not a prediction of their equilibrium population. Is this drawn conformer suitably aligned for the preferred E2 pathway?

5. **State the relationship for a selected group pair separated by 180°.**

6. **Is a 60° selected-group dihedral anti or gauche?**

7. **Can a staggered Newman projection contain a gauche pair?**

8. **Can an acyclic C–C bond rotate from a gauche to an anti orientation without breaking bonds?**