

CONCEPT: RING STRAIN AND STABILITY

Heat of Combustion is a technique that blows up molecules to see how energetic they are:

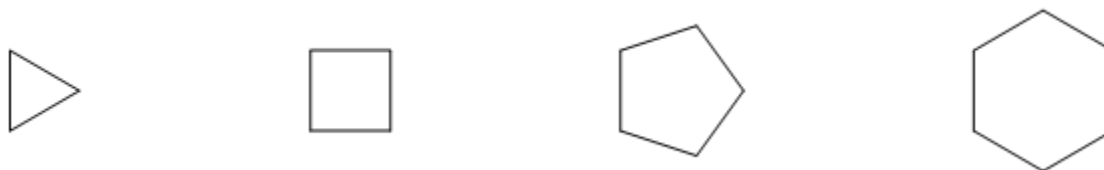
___ Heat of Combustion = ___ Energy = ___ Stability

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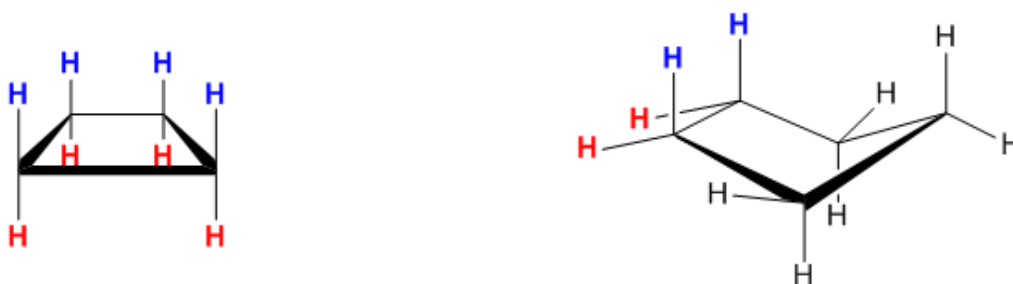
Sources of Alkane Instability:

1. *Shape*: Straight chains are less stable than branched chains.
2. *Strain*: Found in many cycloalkanes. There are a few types of strain:

☐ Angle strain exists when cyclic tetrahedral bonds are forced out of their ideal bond angle of _____



☐ Torsional strain exists when neighboring carbons possess hydrogens that overlap in space (eclipse)



EXAMPLE: Which of the following conformations of cyclohexane would have the lowest heat of combustion?

