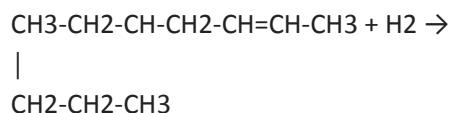


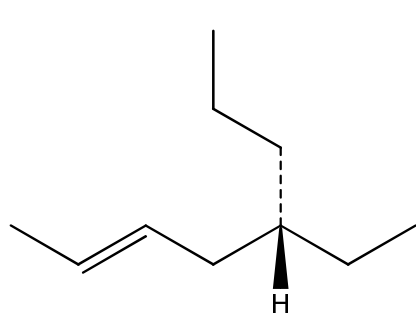
Question #57939, Chemistry / Organic Chemistry |

1. Name the following hydrocarbon, identify the functional group and give the product of the following addition reaction with hydrogen.

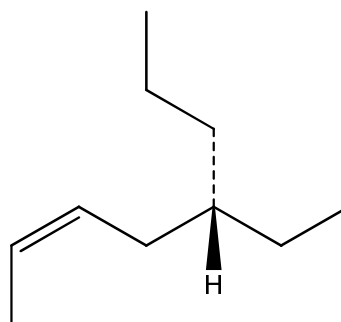


**Answer:**

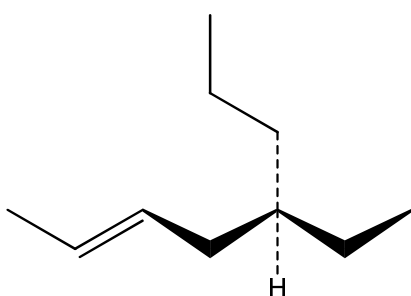
This structure corresponds to four different isomers: two geometric (Z- and E-) and two enantiomers (R-, S-). Thus, there are four different compounds with four different names:



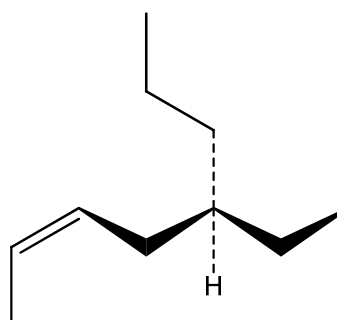
(*S,E*)-5-ethyloct-2-ene



(*S,Z*)-5-ethyloct-2-ene

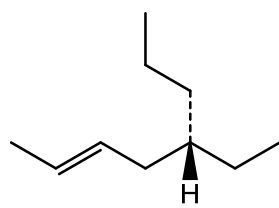


(*R,E*)-5-ethyloct-2-ene

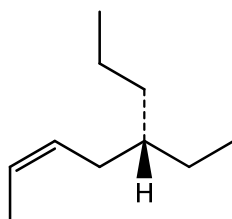


(*R,Z*)-5-ethyloct-2-ene

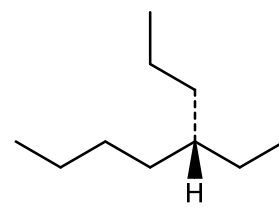
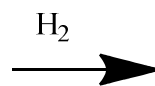
However, reaction with hydrogen gives only two isomers (R and S), because the double bonds disappear:



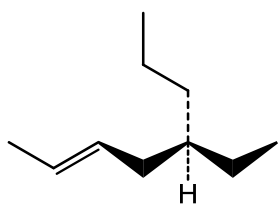
(*S,E*)-5-ethyloct-2-ene



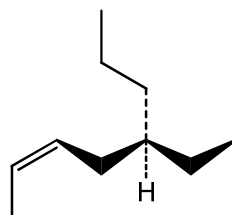
(*S,Z*)-5-ethyloct-2-ene



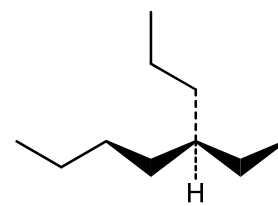
(*S*)-4-ethyloctane



(*R,E*)-5-ethyloct-2-ene



(*R,Z*)-5-ethyloct-2-ene



(*R*)-4-ethyloctane