

**$^1J(\text{C,H})$  Coupling**

Calculate the hybridizations of the C-atoms in the cycloalkanes and cycloalkenes using the empirical equation  $^1J(\text{C,H}) = 500 s$ . Discuss.

**Table 3-12.**

Coupling constants  $^1J(\text{C,H})$  in cycloalkanes [4].

Compound	$^1J(\text{C,H})$ [Hz]
Cyclopropane	160.3
Cyclobutane	133.6
Cyclopentane	128.5
Cyclohexane	125.1
Cyclodecane	124.3

**Table 3-13.**

Coupling constants  $^1J(\text{C,H})$  in cycloalkenes.

Compound	$^1J(=\text{C,H})$ [Hz]
Cyclopropene	228.2
Cyclobutene	168.6
Cyclopentene	161.6
Cyclohexene	158.4
$\text{C}_n\text{H}_{2n-2}$ ( $n > 6$ )	$\approx 156$