

Exercise 10.2
Structural Isomers

1. Increasing the number of different groups attached to the carbon atoms rapidly increases the number of possible structural isomers.

(a) Draw both structural isomers for C_4H_{10} .

(b) Draw all four structural isomers for C_4H_9F .

(c) Draw all nine structural isomers for $C_4H_8F_2$.

(d) How many structural isomers are possible for C_4H_8FCl ?

Hint: This number will be larger than 9. The best approach to this question is simply to draw them all and count how many you got.

2. Increasing the unsaturation index* rapidly increases the number of possible structural isomers.

*unsaturation index (aka “degrees of unsaturation”) = # rings + # pi bonds in a molecule

(a) Draw both structural isomers for C_4H_{10} .

(b) Draw all five structural isomers for C_4H_8 .

(d) How many structural isomers are possible for C_4H_6 ?

Hint: This number will be larger than 5. The best approach to this question is simply to draw them all and count how many you got.