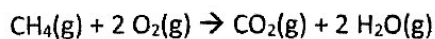
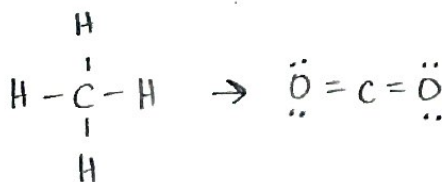


Let's Practice!

1. What hybridization change does the carbon atom undergo in the combustion of methane?

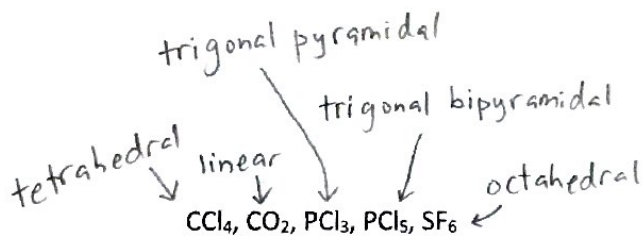
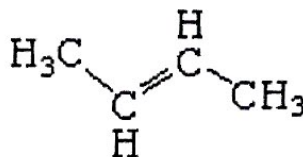


- a. $sp \rightarrow sp^2$
 b. $sp^2 \rightarrow sp^3$
 c. $sp^3 \rightarrow sp$
 d. $sp^2 \rightarrow sp$



2. How many sigma and pi bonds are present in the following molecule?

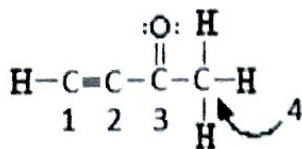
- a. 8 sigma bonds and 1 pi bond
 b. 8 sigma bonds and 2 pi bonds
 c. 10 sigma bonds and 2 pi bonds
 d. 11 sigma bonds and 1 pi bond



3. Which of the following does not describe any of the molecules above?

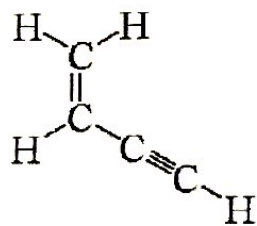
- a. tetrahedral
 b. linear
 c. octahedral
 d. square planar

4. Label the hybridization at each carbon in the molecule below.



- | | C1 | C2 | C3 | C4 |
|----|--------|--------|--------|---------|
| a. | sp^3 | sp | sp^3 | sp^3d |
| b. | sp | sp | sp^2 | sp^3 |
| c. | sp | sp^2 | sp^2 | sp^2 |
| d. | sp^2 | sp^2 | sp^3 | sp^3 |

5. How many sigma bonds and pi bonds are in the following molecule?

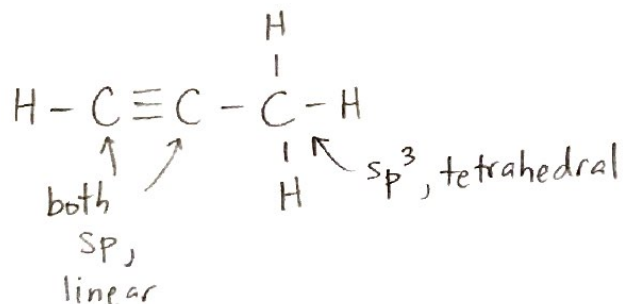


- a. five σ and two π
 b. five σ and three π
 c. five σ and five π
 d. seven σ and two π
 e. seven σ and three π

6. Complete the chart below:



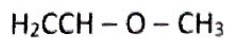
Lewis structure:



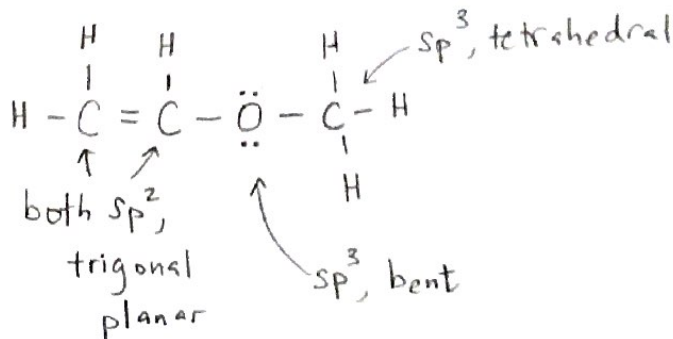
Label the hybridization AND molecular geometry around each carbon in the molecule above.

Total # of sigma bonds: 6

Total # of pi bonds: 2



Lewis structure:



Label the hybridization AND molecular geometry around each carbon and oxygen in the molecule above.

Total # of sigma bonds: 9

Total # of pi bonds: 1