

**How many pounds of carbon dioxide is produced by a gallon of gasoline?**

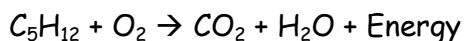
When gasoline burns, the carbon and hydrogen separate (when carbon and hydrogen are bonded together the molecule is referred to as a hydrocarbon). The hydrogen combines with oxygen to form water, and carbon dioxide combines with oxygen to form carbon dioxide.

Hydrocarbon + Oxygen Gas  $\rightarrow$  Carbon Dioxide + Water + Thermal Energy

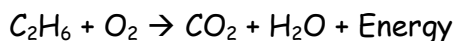
1. What is the molar mass of  $CO_2$ ? Show work
2. How much of the total molar mass does Carbon contribute?
3. Divide the total molar mass by the amount of molar mass contributed by Carbon.
4. Gasoline is about 87% carbon and 13% Hydrogen by weight. If a gallon of gasoline weighs approximately 6.3 lbs how many pounds of carbon are in a gallon of gasoline?
5. To calculate the amount of  $CO_2$  produced from a gallon of gasoline multiply the pounds of Carbon by the answer you calculate in number 3.

Balance the following equations (show atom inventory), which represent hydrocarbons going through combustion to produce energy, and determine which one produces more greenhouse gases.

Pentane



Ethane



Octane

