

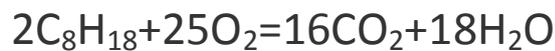
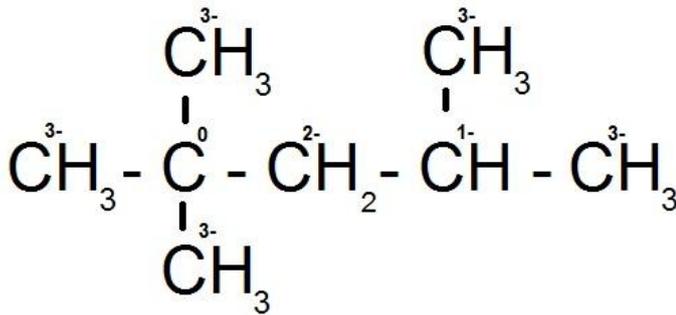
### Question #45181, Chemistry, Physical Chemistry

In an auto engine with no pollution controls, about 5% by mole of fuel (C<sub>8</sub>H<sub>18</sub>) is unburned. Molar ratio of CO<sub>2</sub> And C<sub>8</sub>H<sub>18</sub> emitted in the exhaust gas is.....

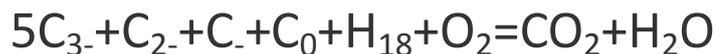
A]100 b]152 c]50 d]5

Answer:

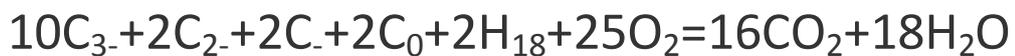
To solve this problem you need to know what is in gasoline. It consists of 2,2,4-trimethylpentane (isooctane) in which the carbon atoms Immersed different degrees of oxidation.



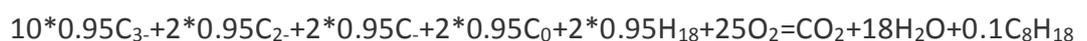
As we can see from the formula isooctane 5 carbon atoms in the oxidation state 3 and 1 atom of 2, 1 and 1 atom 1 atom 0.



Given the coefficients



We write the equation given that 5% octane does not burn



Calculate the amount of moles of carbon atoms to know Number of moles of CO<sub>2</sub>

$$9.5 + 1.9 + 1.9 + 1.9 = 15.2$$

Now find the ratio of CO<sub>2</sub> and unburned octane:

$$15.2/0.1=152$$

**Variant B.**