Question # 80564, answer

The balanced equation below shows the burning of methane in air.
$CH_4(g) + 2O_2(g) \rightarrow CO_2(g) + H_2O(l)$
How many grams of carbon dioxide will be produced when 1 mole of methane burns completely?
Given the atomic masses:
C = 12, H = 1, and O = 16

Answer:

1) Balance the reaction equation:
   $CH_4(g) + \mathbf{2}\ O_2(g) \rightarrow CO_2(g) + \mathbf{2}\ H_2O(l)$

2) Based on reaction stoichiometry 1 mole of carbon dioxide CO_2 will be produced as 1 mole of methane CH_4 was burned
3) MW of CO_2 = 12+ 2*16 = 44 g/mole
4) Mass of CO_2 = MW (CO_2) * number of moles CO_2 = 44 g/mole * 1 mole = 44 g