The products collected from a combustion analysis, lead Mr. Graham to see that he collected 1.320 g of CO_2 and the mass of the tube that traps $H_2O_{(g)}$ increases by 0.540 g.

(i) If we know that the original reactant was a hydrocarbon, determine the empirical formula of the unknown compound.

(ii) If we have determine the molar mass of the unknown hydrocarbon, through mass spectroscopy, to be 84 g / mol, what is the molecular formula of the hydrocarbon?

Promise me you'll always remember: You're braver than you believe, and stronger than you seem, and smarter than you think.
– A. A. Milne

Challenge question!

Combustion of a 1.000g sample of an organic compound known to contain carbon, hydrogen and oxygen produces 2.360 g of CO_2 and 0.640 g of H_2O. What is the empirical formula of the compound?

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– A. A. Milne