# Example

Unknown with M 136 g/mol, 70.6 % C, 5.9 % H.

Give the molecular formula and the unsaturation number.

Propose two vastly different structures (different skeleton, functional groups).

# Example

Unknown with M 136 g/mol, 70.6 % C, 5.9 % H.

Give the molecular formula and the unsaturation number.

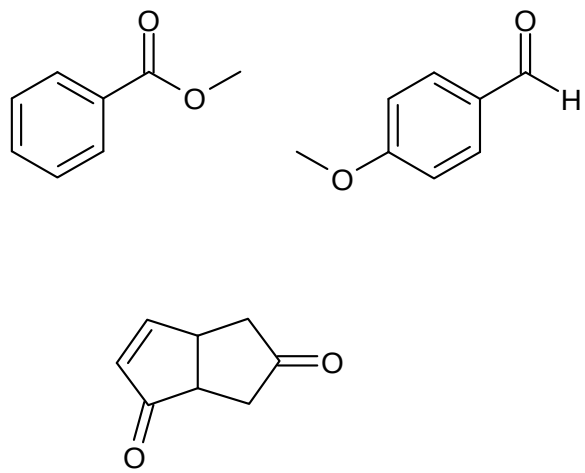
Propose two vastly different structures (different skeleton, functional groups).

100 - 70.6 - 5.9 = 23.5 % O

$$n(C) = \frac{70.6g}{12g/mol} = 5.9mol$$

$$n(H) = \frac{5.9g}{1g/mol} = 5.9mol$$

$$n(O) = \frac{23.5g}{16g/mol} = 1.5mol$$



$\Rightarrow C_{5.9}H_{5.9}O_{1.5} \Rightarrow C_{3.9}H_{3.9}O_1 \Rightarrow (C_4H_4O)_x$

$(C_4H_4O)_x \hat{=} 68$ g/mol $\Rightarrow x = 2 \Rightarrow C_8H_8O_2$ $\Rightarrow$ carboxyl group?

$U = 8 + 1 - \frac{1}{2}(8 - 0) = 9 - 4 = 5$ $\Rightarrow$ aromatic?