$$DOU\ (C_nH_m) = n - \frac{m}{2} + 1; for\ m: Br, H = 1, S = O, N = -1$$

Equation 1. Degrees of unsaturation

$$C_nH_{n+r}; \frac{M}{13} = n + \frac{r}{13}; DOU = \frac{n - r + 2}{2}$$

Equation 2. Rule of 13

Common mass fragments	
H	1
CH_3	15
NH_2; O (rare)	16
OH; NH_3 (rare)	17
H_2O	18
F	19
HF	20
CH≡CH; CN	26
HCN; CH_2=CH	27
CH2=CH_2; CO	28
C_2H_5; CHO	29
NO; CH_2O	30
OCH_3; CH_2OH;	31
CH_3OH; S	32
HS	33
Cl	35
HCl	36
CH_2=C=O; CH_2=CH=CH_3	42
C_3H_7; CH_3C=O	43
CO_2	44
OCH_2CH_3; COOH;;	45
NO_2	46
CH_3CH_2C=O; C_4H_9	57
CH_3COOH	60
C_5H_{11}	71
Ph-	77
Br	79
C_6H_{13}	85
Ph-CH_2	91
Py-CH_2	92
C_7H_{15}	99
Ph-C=O	105
I	127

Halogen intensities (M+2,+4,+6, etc. peaks)	
Cl	100: 32.6
Cl_2	100: 65.3: 10.6
Cl_3	100: 98.1: 31.9: 3.5
Cl_4	76.6: 100: 48.9: 10.6: 0.9
Cl_5	61.3: 100: 65.2: 21.3: 3.5
Br	100: 97.7
Br_2	51.2: 100: 48.9
Br_3	34.1: 100: 97.8: 31.9
BrCl	76.7: 100: 24.5

Rule of 13 substitution

Add	Remove	Unsaturation
C	H_{12}	7
H_{12}	C	-7
N	CH_2	0.5
O	CH_4	1
F	CH_7	2
N_2	C_2H_4	1
Si	C_2H_4	1
P	C_2H_7	2
^{32}S	C_2H_8	2
O_2	C_2H_8	2
^{35}Cl	C_2H_{11}	3
O_3	C_3H_{12}	3
^{79}Br	C_5H_{19}	4
^{79}Br	C_6H_7	-3
I	C_9H_{19}	0
I	$C_{10}H_7$	7

*Unsaturation can not be less than 0 and is unlikely to be fractional;An odd number of nitrogens will show an odd MW; Be aware of the isotopes used in this table