

Addition and subtraction in complementary code

$$[100+40]_{\text{compl}} = [100]_{\text{compl}} \oplus [40]_{\text{compl}}$$

$$[100]_{\text{compl}} = \overset{S}{\boxed{0 \mid 1 \ 1 \ 0 \ 0 \ 1 \ 0 \ 0}} \oplus$$

$$[40]_{\text{compl}} = \overset{S}{\boxed{0 \mid 0 \ 1 \ 0 \ 1 \ 0 \ 0 \ 0}}$$

$$\hline \overset{S}{\boxed{1 \mid 1 \ 0 \ 0 \ 0 \ 1 \ 1 \ 0 \ 0}}$$

overflow

Subunitary convention

$$x = 13/16 = 13 \cdot 16^{-1} = 0, \textcircled{0}_{(16)} = 0, 1101_{(2)}$$

$$y = 0,25 = 0, \textcircled{0}_{(2)}$$

$$0,25 \cdot 2 = \textcircled{0},5$$

$$0,5 \cdot 2 = \textcircled{1},0$$

$$[x]_{\text{dir}} = [x]_{\text{inv}} = [x]_{\text{compl}} = \overset{S_1}{\boxed{0 \mid 1 \ 1 \ 0 \ 1 \ 0 \ 0 \ 0}}$$

$$[-x]_{\text{dir}} = \overset{S_1}{\boxed{1 \mid 1 \ 1 \ 0 \ 1 \ 0 \ 0 \ 0}}$$

$$[-x]_{\text{inv}} = \overset{S_1}{\boxed{1 \mid 0 \ 0 \ 1 \ 0 \ 1 \ 1 \ 1}}$$

$$[-x]_{\text{compl}} = \overset{S_1}{\boxed{1 \mid 0 \ 0 \ 1 \ 1 \ 0 \ 0 \ 0}}$$

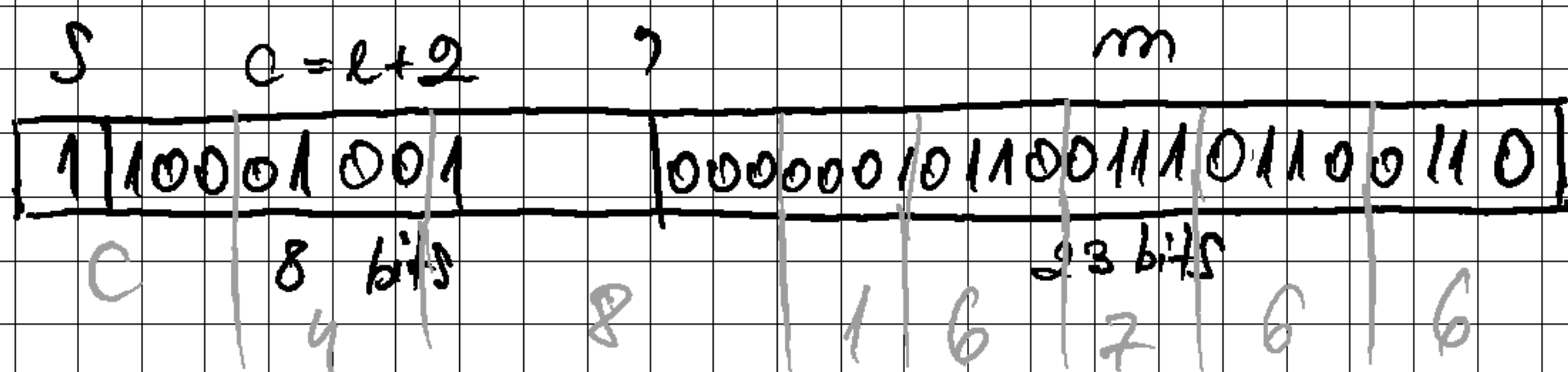
Examples:

$$X = -1035, 37$$

S. P. , 32 bits , $m > 1$
Single precision

$$1035 = 1024 + 8 + 2 + 1 = 2^{10} + 2^3 + 2^1 + 2^0 = \\ = 10000001011_{(2)}$$

$$X = -1035, 37 = -10000001011, 00111011001100_{(2)} \\ = -\underbrace{1}_{\text{hidden bit}}, \underbrace{000000101100111011001100}_{m_{(2)}} \cdot 2^{\textcircled{10}}$$



$$0,37 = 0,16651_{(8)} = 0, \underline{001} \underline{110} \underline{110} \underline{011} \underline{001}_{(2)}$$

$$0,37 \cdot 8 = 1,85$$

$$0,85 \cdot 8 = 6,8$$

$$0,8 \cdot 8 = 6,4$$

$$0,4 \cdot 8 = 3,2$$

$$0,2 \cdot 8 = 1,6$$

$$C = 2+2 = 2+127 = 10+127 = \\ = 137 = 2^7 + 2^3 + 2^0 = 128+8+1 = \\ = 10001001$$