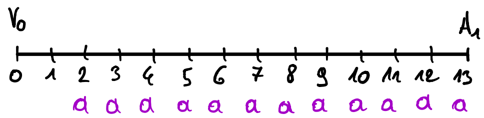
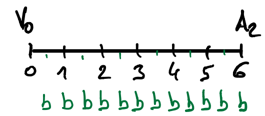
① 

② 

① $A_1 = a + (1+i)a + (1+i)^2 a + \dots + (1+i)^{11} a$

$$= a\underbrace{\left[1 + (1+i) + (1+i)^2 + \dots + (1+i)^{11}\right]}_{S = \frac{lq-a}{q-1} = \frac{(1+i)^{11}(1+i)-1}{(1+i)-1}}$$

$$A_1 = a\,\frac{(1+i)^{12}-1}{i} \longrightarrow V_0 = (1+i)^{-13} A_1 \Leftrightarrow \boxed{V_0 = (1+i)^{-13}\, a\, \frac{(1+i)^{12}-1}{i} \quad \text{(eq.1)}}$$

② $A_2 = b + (1+i_s)b + (1+i_s)^2 b + \dots + (1+i_s)^{11} b$

$$= b\underbrace{\left[1 + (1+i_s) + \dots + (1+i_s)^{11}\right]}_{S = \frac{lq-a}{q-1}}$$

$$A_2 = b\,\frac{(1+i_s)^{12}-1}{i_s} \longrightarrow V_0 = (1+i_s)^{-11} A_2 \Leftrightarrow \boxed{V_0 = (1+i_s)^{-11}\, b\, \frac{(1+i_s)^{12}-1}{i_s} \quad \text{(eq.2)}}$$

Maintenant il faut trouver le taux d'équivalence :

$$1 + 0.06 = (1+i_s)^2 \Leftrightarrow \boxed{i_s = \sqrt{1+0{,}06} - 1}$$

En combinant (eq.1) et (eq.2) :

$$(1+i)^{-13}\, a\, \frac{(1+i)^{12}-1}{i} = (1+i_s)^{-11}\, b\, \frac{(1+i_s)^{12}-1}{i_s}$$

$$b = \frac{a\left[(1+i)^{12}-1\right](1+i_s)^{11}\, i_s}{(1+i)^{13}\, i\, \left[(1+i_s)^{12}-1\right]}$$

$$= a\,\frac{(1+i_s)^{11}}{(1+i)^{13}} \cdot \frac{i_s}{i} \cdot \frac{(1+i)^{12}-1}{(1+i_s)^{12}-1}$$

$$= \dots$$

$$b = 5752{,}06 \text{ €}$$