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4HDS, 18.4.2018

Zinseszins, Abschreibungen

$$1. \quad K_{15} = 130'203.60, \quad p = 3.5\%$$

$$K_0 = ?$$

$$K_{15} = K_0 (1 + 3.5\%)^{15}$$

$$K_0 = \frac{K_{15}}{1.035^{15}} = \frac{130'203.60}{1.035^{15}}$$

$$\underline{\underline{K_0 = 77'777.-}}$$

$$2. \quad K_0 = 735'250.-; \quad p = -15.5\%$$

$$K_5 = ?$$

$$K_5 = K_0 (1 + p)^5$$

$$= 735'250 (1 - 15.5\%)^5$$

$$= 735'250 \cdot 0.845^5$$

$$\underline{\underline{K_5 = 316'751.45}}$$

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③ $K_{20} = 2K_0$
 $K_{20} = K_0 (1+p)^{20}$
 $2K_0 = K_0 (1+p)^{20} \quad | : K_0$
 $(1+p)^{20} = 2 \quad | \sqrt[20]{}$
 $1+p = \sqrt[20]{2}$
 $p = \sqrt[20]{2} - 1 \approx \underline{\underline{3.53\%}}$
 (3.526'492...)

④ LKN: 176'000.- / $p = -11.5\%$
 Car: 254'000.- / $p = -16\%$

$$176'000 (1 - 11.5\%)^n = 254'000 (1 - 16\%)^n \quad | : 1000$$

$$176 (1 - 0.115)^n = 254 (1 - 0.16)^n$$

$$176 \cdot 0.885^n = 254 \cdot 0.84^n$$

$$\frac{0.885^n}{0.84^n} = \frac{254}{176}$$

$$\left(\frac{0.885}{0.84} \right)^n = \frac{254}{176}$$

$$n = \frac{\log\left(\frac{254}{176}\right)}{\log\left(\frac{0.885}{0.84}\right)}$$

$$n = 7.0297... \approx 7.03 \text{ Jahre}$$

resp. nach 8 Jahren

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Jahr 0: Einzahlung

Jahr 1: 1. Zinsauschüttung (n=1)

Jahr 2: 2. Zinsauschüttung (n=2)

⋮

Jahr 2018: 2018. " n = 2018

$$K_{2018} = 0.01 \cdot (1 + 1\%)^{2018}$$

$$= 0.01 \cdot 1.01^{2018}$$

$$\underline{\underline{K_{2018} = 5'254'510.85}}$$

(2017: 5'202'485.99

↳ 5'202'486.-) - 1P.

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$$K_4 - K_0 = 1'616.30 ; p = 5\%$$

$$K_4 = K_0 (1 + 5\%)^4$$

$$K_4 = K_0 \cdot 1.05^4 \text{ einsetzen}$$

$$K_0 \cdot 1.05^4 - K_0 = 1'616.30$$

$$K_0 (1.05^4 - 1) = 1'616.30$$

$$K_0 = \frac{1'616.30}{1.05^4 - 1}$$

$$K_0 = 7'500.0145 \approx \underline{\underline{7'500.-}}$$

$$\underline{\underline{K_4 = 9'116.30}}$$