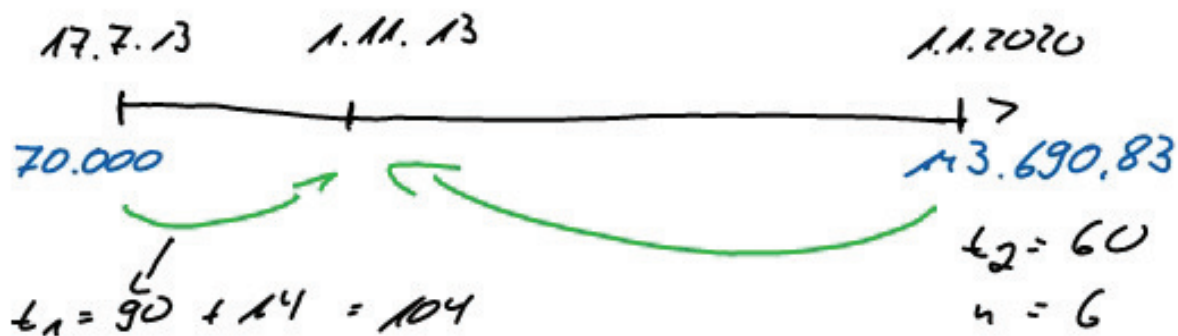


6) b) $K_0 = 70.000$



$$K_{1.11} = 70.000 \left(1 + 0,04 \cdot \frac{104}{360} \right) = 70.808,89$$

$$K_{1.1.20} = 143.690,83 = K_0 \cdot \left(1 + 0,04 \cdot \frac{60}{360} \right) \cdot 1,04^6$$

$$K_0 = 112.808,89$$

$$\text{Einzahlung} = K_0 - K_{1.11} = 42.000,-$$

$$1) \quad q = 1,045 \quad k_7 = 1000,- \quad u = 7$$

$$1000,- = k_0 \cdot 1,045^{-7}$$

$$k_0 = 734,83$$

$$2) \quad a) \quad 10 = u \quad k_u = 2 \cdot k_0$$

$$2 \cdot k_0 = k_0 \cdot (1+x)^{10} \quad | : k_0$$

$$2 = (1+x)^{10}$$

$$x = \sqrt[10]{2} - 1$$

$$x = 7,1\%$$

$$b) \quad u = 7$$

$$1,5 = (1+x)^7$$

$$x = \sqrt[7]{1,5} - 1$$

$$x = 5,96\%$$

$$3) \quad K_0 = 20.000 \quad q = 1,06 \quad K_n = 20.000 + 10.077,60 \\ = 30.077,6$$

$$30.077,6 = 20.000 \cdot 1,06^n \quad | : 20.000$$

$$1,5036 = 1,06^n$$

$$\log 1,5 = n \cdot \log 1,06 \quad | / \log$$

$$| : \log 1,06$$

$$n = \frac{\log 1,5}{\log 1,06}$$

$$n = 7 \text{ Jahre}$$

$$4) \quad q = 1,05$$

$$\text{v.a.d. r./socht:} \quad 3 = 1,05^x$$

$$x = \frac{\log 3}{\log 1,05} = 22,51 \\ = 23 \text{ Jahre}$$

$$n\text{-fach:} \quad n = 1,05^x$$

$$x = \frac{\log n}{\log 1,05} = 47,2 \cdot \log n$$

$$1) \quad K_0 = 96.000 \quad K_5 = 6.000 \quad n = 5$$

$$A_5 = \frac{96.000 - 6.000}{5} = 18.000$$

K_n	A_n	P_n (%)	P (%)
96.000	18.000	18,75	18,75
78.000	"	23,1	"
60.000	"	30	"
42.000	"	42,9	"
24.000	"	75	"
6.000			

$$2) \quad A_n = \frac{13 \text{ Mio} - 1 \text{ Mio}}{32} = \frac{12}{32} = 375.000$$

$$K_{27} = 13 \text{ Mio} - 27 \cdot 375.000 = 2.875.000$$

Lösung:

$$\text{Zu 1)} \quad A_5 = \frac{K_0 - K_5}{5} = \frac{96000 - 6000}{5} = 18000$$

$$p_0 = \frac{A_5}{K_0} \cdot 100 = \frac{18000}{96000} \cdot 100 = 18,75\%$$

Abschreibungsplan:

m	K _m	A _m	p _m	p
0	96.000,00 €			
1	78.000,00 €	18.000,00 €	18,75%	18,75%
2	60.000,00 €	18.000,00 €	23,08%	18,75%
3	42.000,00 €	18.000,00 €	30,00%	18,75%
4	24.000,00 €	18.000,00 €	42,86%	18,75%
5	6.000,00 €	18.000,00 €	75,00%	18,75%

$$\text{Zu 2)} \quad A_{32} = \frac{K_0 - K_{32}}{32} = \frac{13 \text{ MIO} - 1 \text{ MIO}}{32} = 375.000$$

$$R_{27} = 13 \text{ MIO} - 27 \cdot 375.000 = 2,875 \text{ MIO}$$

Lösungen zu degressiven Abschreibungen I:

$$\text{zu 1) } n = \frac{\log(40.000) - \log(600.000)}{\log(1-15\%)} = \frac{4,602 - 5,778}{\log(0,85)} = 16,663 \approx 17 \text{ Jahre}$$

Abschreibungsplan:

m	K_m	A_m	p_m	p
0	600.000,00 €			
1	510.000,00 €	90.000,00 €	15,00%	15,00%
2	433.500,00 €	76.500,00 €	15,00%	12,75%
3	368.475,00 €	65.025,00 €	15,00%	10,84%
4	313.203,75 €	55.271,25 €	15,00%	9,21%
5	266.223,19 €	46.980,56 €	15,00%	7,83%

Lösungen zu degressiven Abschreibungen II:

zu 2) Abschreibungsplan:

m	K_m	A_m	p_m	p
0	460.000,00 €			
1	368.000,00 €	92.000,00 €	20,00%	20,00%
2	294.400,00 €	73.600,00 €	20,00%	16,00%
3	221.800,00 €	72.600,00 €	24,66%	15,78%
4	149.200,00 €	72.600,00 €	32,73%	15,78%
5	76.600,00 €	72.600,00 €	48,66%	15,78%
6	4.000,00 €	72.600,00 €	94,78%	15,78%

Lösungen zu degressiven Abschreibungen III:

Degressive Abschreibung mit „nicht abzuschreibendem Betrag“

$$\text{zu 3a) } p = \left(1 - \sqrt[n]{\frac{K_n + d}{K_0 + d}}\right) \cdot 100 = \left(1 - \sqrt[10]{\frac{140.000}{440.000}}\right) \cdot 100 = 10,82\%$$

$$\text{zu 3b) } K_n = (K_0 + d) \cdot (1 - i)^n = 440.000 \cdot 0,8918^5 = 248.193,28$$

Abschreibungsplan:

m	K_m	A_m	p_m	p
0	440.000,00 €			
1	392.392,00 €	47.608,00 €	10,82%	10,82%
2	349.935,19 €	42.456,81 €	10,82%	9,65%
3	312.072,20 €	37.862,99 €	10,82%	8,61%
4	278.305,99 €	33.766,21 €	10,82%	7,67%
5	248.193,28 €	30.112,71 €	10,82%	6,84%
6	221.338,77 €	26.854,51 €	10,82%	6,10%
7	197.389,91 €	23.948,85 €	10,82%	5,44%
8	176.032,32 €	21.357,59 €	10,82%	4,85%
9	156.985,63 €	19.046,70 €	10,82%	4,33%
10	139.999,78 €	16.985,84 €	10,82%	3,86%

Lösungen zu degressiven Abschreibungen IV:

Degressive Abschreibung ohne „nicht abzuschreibendem Betrag“

$$\text{zu 3c) } p = \left(1 - \sqrt[n]{\frac{K_n + d}{K_0 + d}}\right) \cdot 100 = \left(1 - \sqrt[10]{\frac{20.000}{320.000}}\right) \cdot 100 = 24,21\%$$

$$K_n = (K_0 + d) \cdot (1 - i)^n = 320.000 \cdot 0,7579^5 = 80.022,02$$

Abschreibungsplan:

m	K_m	A_m	p_m	p
0	320.000,00 €			
1	242.528,00 €	77.472,00 €	24,21%	24,21%
2	183.811,97 €	58.716,03 €	24,21%	18,35%
3	139.311,09 €	44.500,88 €	24,21%	13,91%
4	105.583,88 €	33.727,22 €	24,21%	10,54%
5	80.022,02 €	25.561,86 €	24,21%	7,99%
6	60.648,69 €	19.373,33 €	24,21%	6,05%
7	45.965,64 €	14.683,05 €	24,21%	4,59%
8	34.837,36 €	11.128,28 €	24,21%	3,48%
9	26.403,24 €	8.434,12 €	24,21%	2,64%
10	20.011,01 €	6.392,22 €	24,21%	2,00%