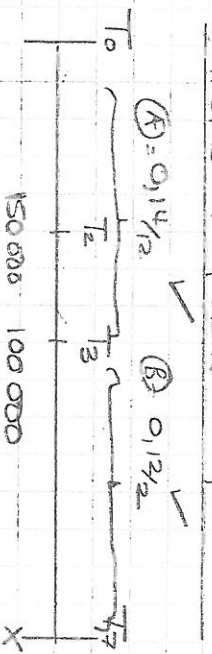


Q1.



(A) $0.14\frac{1}{2}$ ✓ (B) $0.13\frac{1}{2}$ ✓

350 000 ✓

$X = 350\,000(1+A)^{36} (1+B)^8$ ✓

$-150\,000(1+A)^{12} (1+B)^8$ ✓

$-100\,000(1+B)^8$ ✓

$X = 8412\,793.54$ ✓

(10)

Q2.

$FV = PV(1+\frac{r}{12})^{24}$

$= 1196,41$ ✓

$1196,41(1+\frac{r}{12})^{12} = 1609,04$ ✓

$1+\frac{r}{12} = \sqrt[12]{1,344}$ ✓

$r = 10\%$ ✓

$PV = 1196,41(1+\frac{0,10}{12})^{-24}$ ✓

$= 8980,33$ ✓

(6)

Q3

i) the monthly payment ✓

(2)

ii) 7 months, ✓ $TP = 81387,18$ ✓

(5)

iii) the capital paid in that month ✓

(3)

b) $(1+\frac{r}{4})^4 = (1+\frac{0,1425}{12})^{12}$ ✓

$1+\frac{r}{4} = \sqrt[4]{(1+\frac{0,1425}{12})^{12}}$ ✓

{ $i = 3,6\%$ ✓ $i = 14,4\%$ ✓ } per quarter per annum

(14)

$\sqrt{1800\,000} = X[1-(1+i)^{-40}]$ ✓

$\frac{85\,666,77}{85\,108,11} = X$ ✓

(8)

Q4.

$i = 0,125$ ✓



a) $150\,000 = X[1-(1+i)^{-60}]$ ✓

(4)

$83\,374,69 = X$ ✓

b) $B/O_{\text{payment}} = 150\,000(1+i)^t + 3374,69[(1+i)^t - 1]$ ✓

$= 148\,187,81$ ✓

$150\,000 - B/O = 81\,812,19$ ✓

$\frac{1812,19}{3374,69} \times 100\% = 53,7\%$ ✓

(8)

c) $\text{Principd} = \text{total pd} - \text{interest pd}$ ✓

$150\,000(1+\frac{0,125}{12})^{12}$ ✓

$$b) \quad B/O \text{ at } T_4 = 351627(1+i)^4 - 10000 \frac{(1+i)^4 - 1}{i}$$

$$= 3708,401 \quad \checkmark$$

$$\text{Final Payment} = 860 \times (1+i)^4 = 13737,76 \quad \checkmark$$

Q6.

$$a) \quad T_5 = p \cdot T_4 + q \cdot T_3 = 2303,43 = 1233,63 + q \cdot 1125,50 \quad \checkmark$$

$$T_4 = p \cdot T_3 + q \cdot T_2 = 1233,63 = p \cdot 1125,50 + q \cdot 1000 \quad \checkmark$$

$$p = 1,005 \quad \checkmark \quad q = 1025 \quad \checkmark$$

$$b) \quad T_3 = p \cdot T_2 + q \cdot T_1 \quad \checkmark$$

$$1125,50 = p \cdot 1000 + q \cdot T_1 \quad \checkmark$$

$$T_1 = 1000 \quad \checkmark \quad (3)$$

$$Q7 \quad a) \quad b = 0,60 \times 0,48 \times (2,5 \times 0) = 1,44 \quad \checkmark$$

$$d = 10 \quad \checkmark$$

$$r = b - d = 1,34 \quad \checkmark \quad (4)$$

$$b) \quad C_{n+1} = 2,34 \cdot C_n \quad \checkmark \quad C_0 = 100 \quad \checkmark \quad (2)$$

$$c) \quad 3016 \quad \checkmark \quad (3)$$

$$c) \quad 150000(1+i)^8 = x \left[1 - \frac{(1+i)^{-52}}{i} \right] \quad \checkmark \quad (8)$$

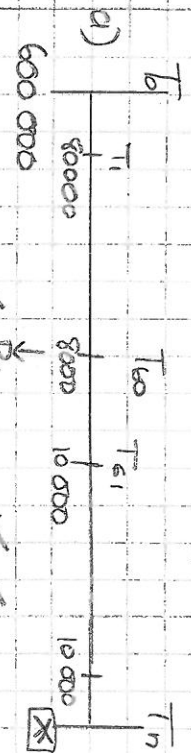
$$24034,82 = x \quad \checkmark$$

$$d) \quad I_1 = 4074,88 \times 52 - 150000 = 61893,76 \quad \checkmark \quad (5)$$

$$I_2 = 5 \cdot 2481,40 \cdot 10 \quad \checkmark$$

$$I_1 - I_2 = 9412,36 \quad \checkmark \quad \text{extra interest}$$

$$Q5. \quad i = 0,095 \quad \checkmark \quad 12 \quad \checkmark$$



$$\text{at } T_{60} \quad B/O = 60000(1+i)^{60} - 8000 \left[\frac{(1+i)^{60} - 1}{i} \right] = 351627,89 \quad \checkmark$$

$$P_v = 10000 \left[\frac{1 - (1+i)^{-n}}{i} \right] \quad \checkmark$$

$$0,7216 \dots = (1+i)^{-n} \quad \checkmark$$

$$\log_{(1+i)} 0,7216 \dots = -n \quad \checkmark$$

$$41,372 \dots = n \quad \checkmark$$

$$41 \text{ payments of } 10000 \quad \checkmark \quad (12)$$

$$d) C_{n+1} = 2,34 C_n - 130 \quad C_0 = 100$$

$$\therefore C_5 = 206, \text{ cats.}$$

(3)

$$e) C_{n+1} = C_x$$

$$C_0 = 2,34, C_0 = x$$

$$100 = 2,34, 10 - x$$

$$134 = x$$

(2)