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PR. $R = 1500$
 $n = 5$
 $i = 0,05$
 $d = 0,1$

 $S_5 = ?$

BUDÚCA HODNOTA:

$$S_n = R(1+i)^n \left[1 - \left(\frac{1+d}{1+i} \right)^n \right] \frac{1}{i-d}$$

$$S_5 = 1500 (1+0,05)^5 \left[1 - \left(\frac{1+0,1}{1+0,05} \right)^5 \right] \frac{1}{0,05-0,1}$$

$$S_5 = 10\,026,853125$$

PR $A_6 = 8\,000$
 $n = 6$
 $i = 0,04$
 $d = 0,05$

 $R = ?$

SÚČASNÁ HODNOTA

$$A_n = R \left[1 - \left(\frac{1+d}{1+i} \right)^n \right] \frac{1}{i-d}$$

$$8\,000 = R \left[1 - \left(\frac{1+0,05}{1+0,04} \right)^6 \right] \frac{1}{0,04-0,05} \quad | \cdot (0,04-0,05)$$

$$8\,000 (0,04-0,05) = R \left[1 - \left(\frac{1+0,05}{1+0,04} \right)^6 \right] \quad | : \left[1 - \left(\frac{1+0,05}{1+0,04} \right)^6 \right]$$

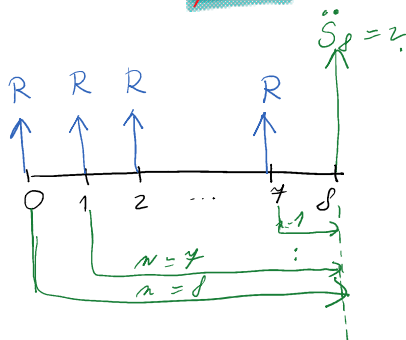
$$R = \frac{8\,000 (0,04-0,05)}{\left[1 - \left(\frac{1+0,05}{1+0,04} \right)^6 \right]} = 1\,353,70546$$

PREDLEHOTNÁ RENTA

$p=1$

PR 1 $R = 3\,000$
 $i = 0,025$
 $n = 8$

 $\ddot{S}_8 = ?$



BUDÚCA HODNOTA

$$\ddot{S}_n = R(1+i) \frac{(1+i)^n - 1}{i}$$

$$\ddot{S}_8 = 3000 (1+0,025) \frac{(1+0,025)^8 - 1}{0,025}$$

$$\ddot{S}_8 = 26\,863,56$$

PR 2 $\ddot{S}_5 = 13\,140,82$
 $i = 0,025$
 $n = 5$

 $R = ?$

$$\ddot{S}_n = R(1+i) \frac{(1+i)^n - 1}{i}$$

$$13\,140,82 = R(1+0,025) \frac{(1+0,025)^5 - 1}{0,025} \quad | : 1,025$$

$$\frac{13\,140,82}{1,025} = R \frac{1,025^5 - 1}{0,025} \quad | \cdot \frac{0,025}{1,025^5 - 1}$$

$$R = \frac{13\,140,82 \cdot 0,025}{1,025^5 - 1} = 2\,439,02$$

PR3 $R = 5\ 000$
 $i = 0,04$
 $\ddot{S}_n = 28\ 200$

$n = ?$

$$\ddot{S}_n = R(1+i) \frac{(1+i)^n - 1}{i}$$

$$28\ 200 = 5\ 000(1+0,04) \frac{(1+0,04)^n - 1}{0,04} \quad | : (5\ 000 \cdot 1,04)$$

$$\frac{28\ 200}{5\ 000 \cdot 1,04} = \frac{1,04^n - 1}{0,04} \quad | \cdot 0,04$$

$$\frac{282}{50 \cdot 1,04} \cdot 0,04 = 1,04^n - 1 \quad | +1$$

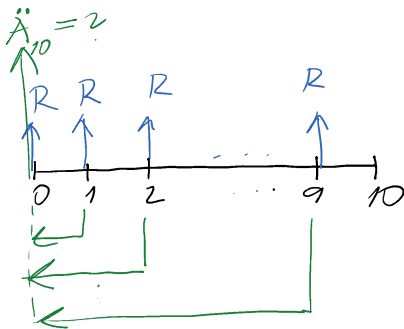
$$1,04^n = \frac{282}{50 \cdot 1,04} \cdot 0,04 + 1 \quad | \ln(\)$$

$$\ln 1,04^n = \ln \left(\frac{282}{50 \cdot 1,04} \cdot 0,04 + 1 \right) \quad | : \ln 1,04$$

$$n = \frac{\ln \left(\frac{282}{50 \cdot 1,04} \cdot 0,04 + 1 \right)}{\ln 1,04}$$

$$n = 4,97341 \approx 5 \text{ vhladov}$$

PR4 $R = 4\ 458,88$
 $i = 0,025$
 $n = 10$
 $\ddot{A}_0 = ?$



SÚČASNÁ HODNOTA

$$\ddot{A}_n = R(1+i) \frac{1 - (1+i)^{-n}}{i}$$

$$\ddot{A}_{10} = 4\ 458,88(1+0,025) \frac{1 - (1+0,025)^{-10}}{0,025}$$

$$\ddot{A}_{10} = 40\ 000$$

$k > 1$

$(1+i)$ 1 rok $m = 1$

$(1 + \frac{i}{m})^m$ 1 rok $m > 1$

$\left[\left(1 + \frac{i}{m} \right)^m \right]^{\frac{1}{m}} = \left(1 + \frac{i}{m} \right)^{\frac{1}{m}}$ ÚROČTEĽ ZA 1 PERIÓDU

$$\ddot{S}_m = \left(1 + \frac{i}{m} \right)^{\frac{1}{m}} \cdot S_m = R \left(1 + \frac{i}{m} \right)^{\frac{1}{m}} \frac{\left(1 + \frac{i}{m} \right)^{m \cdot n} - 1}{\left(1 + \frac{i}{m} \right)^{\frac{1}{m}} - 1}$$

$$\ddot{A}_m = \left(1 + \frac{i}{m} \right)^{\frac{1}{m}} \cdot A_m = R \left(1 + \frac{i}{m} \right)^{\frac{1}{m}} \frac{1 - \left(1 + \frac{i}{m} \right)^{-m \cdot n}}{\left(1 + \frac{i}{m} \right)^{\frac{1}{m}} - 1}$$

PR 7 $R = 3000$
 $j = 9,04$
 $k = 2$
 $m = 2$
 $n = 6$
 $\ddot{S}_6 = ?$

$$\ddot{S}_n = R (1 + \frac{j}{m})^{\frac{m}{k}} \frac{(1 + \frac{j}{m})^{m \cdot n} - 1}{(1 + \frac{j}{m})^{\frac{m}{k}} - 1}$$

$$= 3000 (1 + \frac{9,04}{2})^{\frac{2}{2}} \frac{(1 + \frac{9,04}{2})^{2 \cdot 6} - 1}{(1 + \frac{9,04}{2})^{\frac{2}{2}} - 1}$$

$$= 3000 \cdot 1,02 \frac{1,02^6 - 1}{0,02} =$$

$$= \underline{41\,040,99457}$$

PR 8 $\ddot{S}_8 = 13\,204,61$
 $j = 9,034$
 $k = 12$
 $m = 2$
 $n = 8$
 $R = ?$

$$\ddot{S}_n = R (1 + \frac{j}{m})^{\frac{m}{k}} \frac{(1 + \frac{j}{m})^{m \cdot n} - 1}{(1 + \frac{j}{m})^{\frac{m}{k}} - 1}$$

$$13\,204,61 = R (1 + \frac{9,034}{2})^{\frac{2}{12}} \frac{(1 + \frac{9,034}{2})^{2 \cdot 8} - 1}{(1 + \frac{9,034}{2})^{\frac{2}{12}} - 1}$$

$$13\,204,61 = R \cdot 1,017^{\frac{1}{6}} \frac{1,017^{\frac{1}{6}} - 1}{1,017^{\frac{1}{6}} - 1} \cdot \frac{1,017^{\frac{1}{6}} - 1}{1,017^{\frac{1}{6}} (1,017^{\frac{1}{6}} - 1)}$$

$$R = 13\,204,61 \frac{1,017^{\frac{1}{6}} - 1}{1,017^{\frac{1}{6}} (1,017^{\frac{1}{6}} - 1)} = \underline{11966}$$

PR 9 $\ddot{S}_n = 13\,241,76$
 $k = 12$
 $R = 120$
 $j = 9,034$
 $m = 2$
 $m \cdot n = ?$

$$\ddot{S}_n = R (1 + \frac{j}{m})^{\frac{m}{k}} \frac{(1 + \frac{j}{m})^{m \cdot n} - 1}{(1 + \frac{j}{m})^{\frac{m}{k}} - 1}$$

$$13\,241,76 = 120 (1 + \frac{9,034}{2})^{\frac{2}{12}} \frac{(1 + \frac{9,034}{2})^{2n} - 1}{(1 + \frac{9,034}{2})^{\frac{2}{12}} - 1}$$

$$13\,241,76 = 120 \cdot 1,017^{\frac{1}{6}} \frac{1,017^{2n} - 1}{1,017^{\frac{1}{6}} - 1} \cdot \frac{1,017^{\frac{1}{6}} - 1}{120 \cdot 1,017^{\frac{1}{6}}}$$

$$13\,241,76 \frac{1,017^{\frac{1}{6}} - 1}{120 \cdot 1,017^{\frac{1}{6}}} = 1,017^{2n} - 1 \quad | +1$$

$$1,017^{2n} = 13\,241,76 \frac{1,017^{\frac{1}{6}} - 1}{120 \cdot 1,017^{\frac{1}{6}}} + 1 \quad | \ln()$$

$$2n \cdot \ln 1,017 = \ln (13\,241,76 \cdot \frac{1,017^{\frac{1}{6}} - 1}{120 \cdot 1,017^{\frac{1}{6}}} + 1) \quad | : 2 \ln 1,017$$

$$n = \frac{\ln (13\,241,76 \cdot \frac{1,017^{\frac{1}{6}} - 1}{120 \cdot 1,017^{\frac{1}{6}}} + 1)}{2 \ln 1,017}$$

$$n = 8$$

počet splatkov $n \cdot k = 8 \cdot 12 = 96$

PR 10

$$j = 9,1$$

$$p = 4$$

$$m = 12$$

$$n = 7$$

$$R = 3515,3814$$

$$\ddot{A}_7 = ?$$

$$\ddot{A}_n = R (1+j/m)^{m/p} \frac{1 - (1+j/m)^{-mn}}{(1+j/m)^{m/p} - 1}$$

$$\ddot{A}_7 = 3515,3814 (1 + \frac{9,1}{12})^3 \frac{1 - (1 + \frac{9,1}{12})^{-12 \cdot 7} = -84}{(1 + \frac{9,1}{12})^3 - 1}$$

$$\ddot{A}_7 = 7176962$$

PR 11

$$\ddot{A}_{10} = 25000$$

$$j = 9,031$$

$$p = 4$$

$$m = 2$$

$$n = 10$$

$$R = ?$$

$$\ddot{A}_n = R (1+j/m)^{m/p} \frac{1 - (1+j/m)^{-mn}}{(1+j/m)^{m/p} - 1}$$

$$25000 = R (1 + \frac{9,031}{2})^{2/2} \frac{1 - (1 + \frac{9,031}{2})^{-2 \cdot 10} = -20}{(1 + \frac{9,031}{2})^{2/2} - 1}$$

$$25000 = R 1,0155^{10} \frac{1 - 1,0155^{-20}}{1,0155^{1/2} - 1} \quad | : 1,0155^{1/2}$$

$$\frac{25000}{1,0155^{1/2}} = R \frac{1 - 1,0155^{-20}}{1,0155^{1/2} - 1} \quad | \cdot \frac{1,0155^{1/2} - 1}{1 - 1,0155^{-20}}$$

$$R = \frac{25000}{1,0155^{1/2}} \cdot \frac{1,0155^{1/2} - 1}{1 - 1,0155^{-20}} = 723,268$$

PR 12

$$\ddot{A}_n = 20025$$

$$p = 12$$

$$R = 200$$

$$j = 9,015$$

$$m = 12$$

$$n = ? \text{ (celje/polet)}$$

$$\ddot{A}_n = R (1+j/m)^{m/p} \frac{1 - (1+j/m)^{-mn}}{(1+j/m)^{m/p} - 1} \rightarrow \frac{j}{m}$$

$$20025 = 200 (1 + \frac{9,015}{12})^{12/12} \frac{1 - (1 + \frac{9,015}{12})^{-12n}}{(1 + \frac{9,015}{12})^{12/12} - 1} \quad | : 200$$

$$\frac{20025}{200} = (1 + \frac{9,015}{12}) \frac{1 - (1 + \frac{9,015}{12})^{-12n}}{\frac{9,015}{12}} \quad | : (1 + \frac{9,015}{12})$$

$$\frac{20025}{200 (1 + \frac{9,015}{12})} = \frac{12}{9,015} \left[1 - (1 + \frac{9,015}{12})^{-12n} \right] \quad | \cdot \frac{9,015}{12}$$

$$\frac{20025}{200 (1 + \frac{9,015}{12})} \cdot \frac{9,015}{12} = 1 - (1 + \frac{9,015}{12})^{-12n}$$

$$\left(1 + \frac{9,015}{12}\right)^{-12n} = 1 - \frac{20025}{200 (1 + \frac{9,015}{12})} \cdot \frac{9,015}{12} \quad | \ln$$

$$-12n \ln \left(1 + \frac{9,015}{12}\right) = \ln \left(1 - \frac{20025}{200 (1 + \frac{9,015}{12})} \cdot \frac{9,015}{12}\right) \quad | : (-12 \ln \left(1 + \frac{9,015}{12}\right))$$

$$n = \frac{\ln \left(1 - \frac{20025}{200 (1 + \frac{9,015}{12})} \cdot \frac{9,015}{12}\right)}{-12 \ln \left(1 + \frac{9,015}{12}\right)}$$

$$n = 8,908 \Rightarrow 8 \text{ celje/polet}$$