

$$\textcircled{1} \quad \text{PORTFOLIO} = 5.000.000$$

$$I = 0,05 \cdot 5000.000 = 250.000$$

$$r = 3\%$$

$$FV_7 = 1 \cdot (1 + 0,03)^7 = 250.000 \cdot (1 + 0,03)^7 = 304.468,47$$

$$\textcircled{2} \quad PV_0 = 500.000$$

$$r = 0,04$$

$$FV_{10} = 500000 \cdot (1 + 0,04)^{10} = 983.545,68$$

$$\textcircled{3} \quad r = 4\% \text{ p.a.}$$

$$PV_0 = 100.000$$

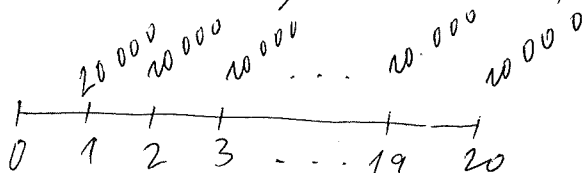
$$FV_4 = 100.000 \cdot \left(1 + \frac{0,04}{4}\right)^4 = 104.185,90$$

$$FV_{12} = 100.000 \cdot \left(1 + \frac{0,04}{12}\right)^{12} = 104.229,01$$

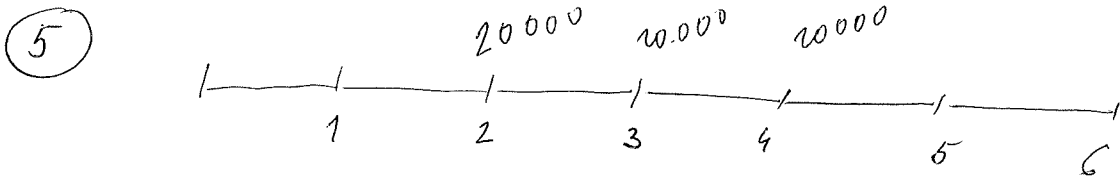
$$EAR = \left(1 + \frac{0,04}{4}\right)^4 - 1 = 4,1859\%$$

$$EAR = \left(1 + \frac{0,04}{12}\right)^{12} - 1 = 4,2290\%$$

$\textcircled{4}$

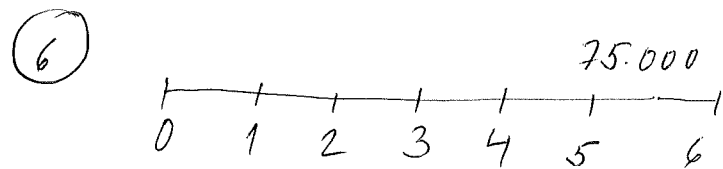


$$FVA_{20} = 20.000 \cdot \frac{(1 + 0,04)^{20} - 1}{0,04} = 819.909,85$$



$$FV_4 = 20.000 \cdot \frac{(1+0,09)^3 - 1}{0,09} = 65.562$$

$$FV_6 = 65.562 \cdot (1+0,09)^2 = 77.894,21$$



$$FV_5 = 75.000$$

$$r = 6\%$$

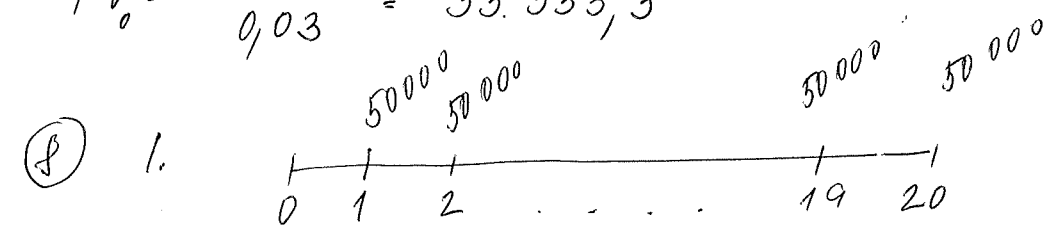
$$PV_0 = \frac{75.000}{(1+0,06)^5} = 56.044,36$$

7

$$D = 1000 \text{ p. q}$$

$$r = 12\% \rightarrow 0,03 \text{ p. q}$$

$$PV_0 = \frac{1000}{0,03} = 33.333,3$$

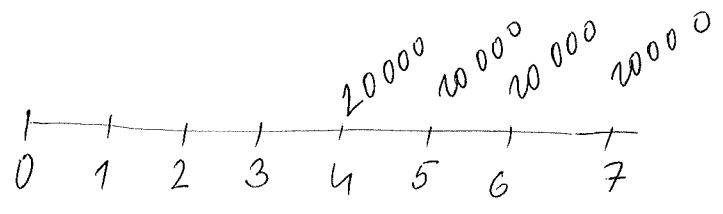


II.  $PV_0 = 500.000$

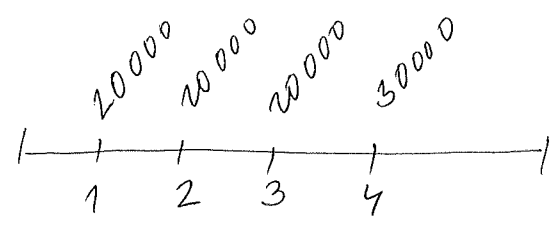
$$PV_{0 \text{ VAR I}} = \frac{50.000}{1+0,06} \cdot \frac{\left(\frac{1}{1+0,06}\right)^{20} - 1}{\frac{1}{1+0,06} - 1} = \frac{604.905,82}{1+0,06} = 573.496,06$$

$$= 50.000 \cdot \left[ \frac{1 - (1+0,06)^{-20}}{0,06} \right] = 573.496,06$$

9) VAR I



VAR II



r = 8%

PV<sub>VAR I</sub> :  $PV_3 = 20.000 \left[ \frac{1 - (1 + 0,08)^{-4}}{0,08} \right] = 66.242,54$

$PV_0 = \frac{66.242,54}{(1 + 0,08)^3} = 52.585,46$

PV<sub>VAR II</sub> :  $PV_0 = 20.000 \left[ \frac{1 - (1 + 0,08)^{-3}}{0,08} \right] + \frac{30.000}{(1 + 0,08)^4} =$   
 $= 51.541,94 + 22.050,9 = 73.592,84$