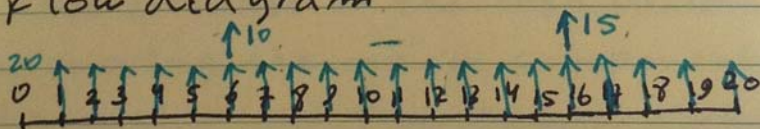


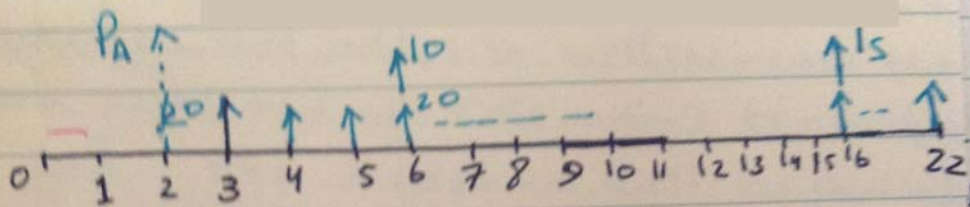
Engig company in Wyoming owns 50 hectares (500,000 m²). It has decided to lease the land to a mining company. the primary objective for the engig company is to finance ongoing projects 6 and 16 years from now. the engineering company makes a proposal to the mining company that it pays \$20K/year for 20 years beginning 1 year from now, plus \$10K 6 years from now, and \$15K 16 years from now. interest rate is 16%.

PV of the lease for the engig company
cash flow diagram



$$\begin{aligned}
 PV &= 20(P/A, 16\%, 20) + 10(P/F, 16\%, 6) \\
 &\quad + 15(P/F, 16\%, 16) \\
 &= \frac{20}{0.16} (1 - 1.16^{-20}) + 10 \times 1.16^{-6} + 15 \times 1.16^{-16} \\
 &= 20 \times (5.928841) + 10 \times (0.410442) + 15(0.093041) \\
 &= \$124.068K
 \end{aligned}$$

What if the uniform (20k) series started at the end of year 3?



$$PV = 20(A/P, 16\%, 20)(P/F, 16\%, 2) + 10(P/F, 16\%, 6) + 15(P/F, 16\%, 16)$$

$$= 20 \times (5.928841) \times 1.16^{-2} + 10 \times (0.410442) + 15(0.093041)$$
$$= \$93.622 \text{ K}$$

Note that because of the high discount rate, moving the major components of the cash flow two years forward reduced PV from \$124.068 to \$93.622K (i.e., by around 25%).

Eng'g company should insist on the first payment pattern.