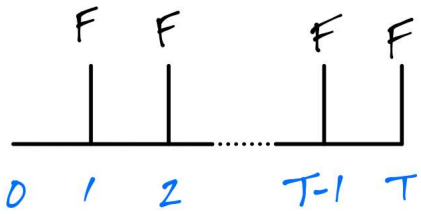
E: PV refresher 3

Formula 5: long but finite stream of identical payments

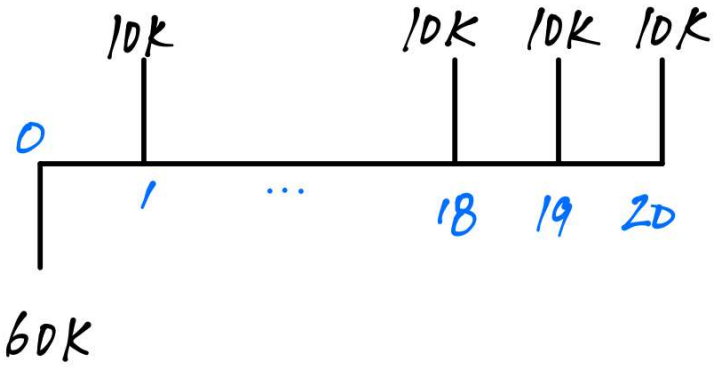
Payment of F every year from 1 to T



$$PV = \frac{F}{r}\left(1 - \frac{1}{(1+r)^T}\right)$$

Example 8:

Cost $60k at 0
Benefit $10k/year in years 1-20
r = 10%



$$PV_B = \frac{F}{r}\left(1 - \frac{1}{(1+r)^T}\right) = \frac{\$10k}{0.1}\left(1 - \frac{1}{(1.1)^{20}}\right) = \$85k$$

$$PV_C = \$60k$$

NPV = $85k - $60k = $25k

Example 9: Exercise on GC