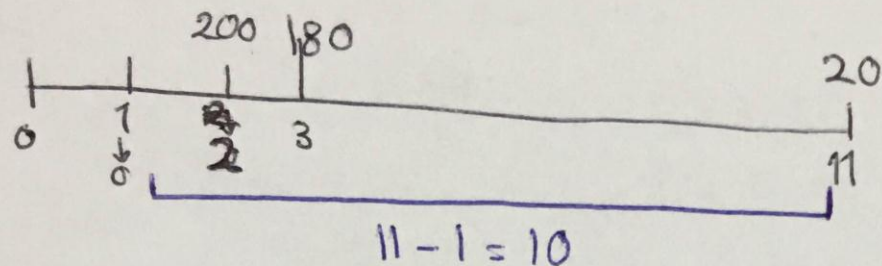


EX: 4 from (Midterm).



$$PV = V' \cdot (Da) \overline{a}|_{10} \cdot 20$$

$$= (1.05)^{-1} \cdot \frac{10 - a \overline{a}|_{10}}{0.05} \cdot 20$$

$$a \overline{a}|_{10} = \frac{1 - (1.05)^{-10}}{0.05} = 7.721734929$$

$$\Rightarrow PV = 868.0574133$$

Brian's 40% n years

Cherity k 2n years

Then

Present value of perpetuity =  $\frac{x}{r}$

Brian's : 40%  $\left(\frac{x}{r}\right)$

Brian is receiving payments for limited periods:  
(from  $t=0$  until  $t=n$ )

Then

annuity present value :  $x a_{\overline{n}|}$  (Brian's)

$$0.4 \left(\frac{x}{r}\right) = x a_{\overline{n}|}$$

$$\frac{0.4}{r} = \frac{1-v^n}{r} \rightarrow v^n = 0.6$$

Cherity's present value =  ~~$\frac{x}{r}$~~  =  $x a_{\overline{2n}|}$

↑  
the will give the value at  $t=2n$

We need to discount it to  $t=0$ :

$$v^{2n} \left(\frac{x}{r}\right) = (0.6)^2 \left(\frac{x}{r}\right)$$

$$= 0.36 \left(\frac{x}{r}\right)$$

$$k = 36\%$$