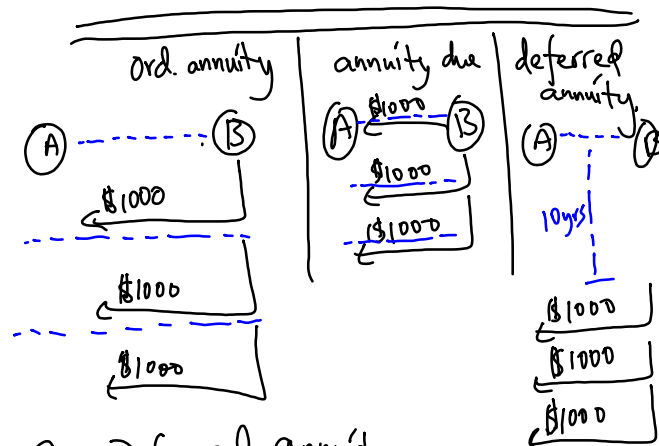


7] 4 hours $t/4$ $\left| \frac{1}{2} = e^{rt} \right.$
 $Q = 1 \left(\frac{1}{2} \right)^{t/4}$
 $Q(6) = \left(\frac{1}{2} \right)^{6/4} = 0.35355$

$at = 6hr$ $Q_1 = 1$
 $Q_2 = 1 + (0.35355)$
 $Q_3 = 1 + (0.35355) + (0.35355)^2$

$Q_{56} = 1 + r + r^2 + \dots + r^{55}$
 $= \sum_{n=1}^{56} r^{n-1} = \frac{1(1-r^{56})}{(1-r)} = 1.5469$



Ex Deferred annuity:

enter into an annuity today that starts pay \$10,000 annually in 15 years for 5 years.

assume discount is 4%.

$$PV = \frac{10}{1.04} + \frac{10}{(1.04)^2} + \dots + \frac{10}{(1.04)^5}$$

$$\bar{PV} = \frac{PV}{(1.04)^{15}} = \frac{44.578}{(1.04)^{15}} = 24,700$$

$$= \frac{10}{1.04} \left[\frac{1 - (\frac{1}{1.04})^5}{1 - \frac{1}{1.04}} \right]$$

$$APR = 8\%$$

$$Q = Q_0 (1.08)^t$$

8% compounded quarterly

$$Q = Q_0 \left[1 + \frac{0.08}{4} \right]^{4t}$$

Mortgages, Student Loans, etc.

- term (maturity)
"When you have to pay your principal + interest by"
- Principal - amount you borrowed.
- interest rate (fixed).
- payment frequency (monthly).

Ex. Borrow 300,000 - principal amt of the loan
maturity 10 years.
freq. annual.
interest. 4%