Effective Annual Rate of Interest

- this is mainly used in perpetuties → but can be as asked to find the effective annual rate of interest.

$$I_e = \left(1 + \frac{i}{n}\right)^n - 1$$

i = interest rate as a decimal

n = number of compounding periods per year

- look at Qs 1 3 2 in exercise 3B (unit 4)

Annuity

- a compound interest investment where regular payments can be made for a fixed period of time.
- Think about when you retire, investing in a sum of money, and finding payments that will last per a certain period of time.

*** Reminder ***

what to put in calc - financial. Is it positive or negative?

- Loans
  PV = + PMT = − FV = 0
- Investments
  PV = − PMT = − FV = +
- Annuities
  PV = − PMT = + FV = 0

Perpetuities

- put simply, having money / income forever
  - ↳ because the amount of interest earnt on the investment = what you want to be paid

$$Q = PE$$

Q = annual withdrawel amount

P = principal E = effective annual rate of interest

- e.g Person wishes to invest a sum of money into an account paying 7.5% interest compounded monthly so that every year thereafter $600 can be made available.

1st - find ie.

$$\left(1 + \frac{0.075}{12}\right)^{12} - 1$$

$$= 0.077632359886$$

$$600 = P \times 0.077632359886$$

$$600 / 0.77632359886$$

$$= \$7728.712021$$

$\approx \$7728.71$ must be invested.