Present Value

$$PV = \frac{C}{(r-g)}\left[1-\left(\frac{1+g}{1+r}\right)^{t}\right]$$

Example

M is 30 and salary next year $40,000. M forecasts salary will increase by 5% per year until age 60 a)If the discount rate is 8 percent, what is the PV of these future salary payments?PV= 40,000/(.08-0.5) (1-(1+.05/1+.08)$^{30)}$ = 76,662.5 b)If M saves 5 percent each year and invests at 8%, saving by age 60?PV(salary) x 0.05 = $38,033.13 Future value = $38,033.13 x (1.08)$_{30}$ = $382,714.30 c)M plans to spend in even amounts over the 20 y, how much spend each year? 382,714.30 = C/.08((1-(1/1+.08)^20) => c= 38,980.73.