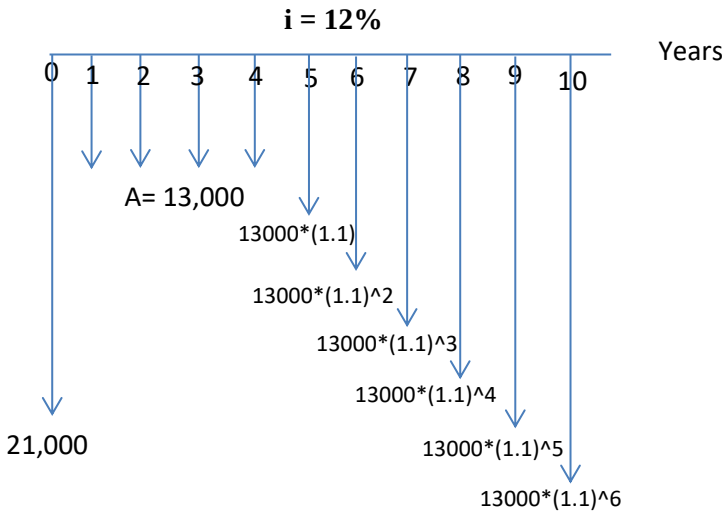
Fourth Tutorial

1- **For the following cash flow diagram, determine the equivalent value in year 5 (i= 12%).**



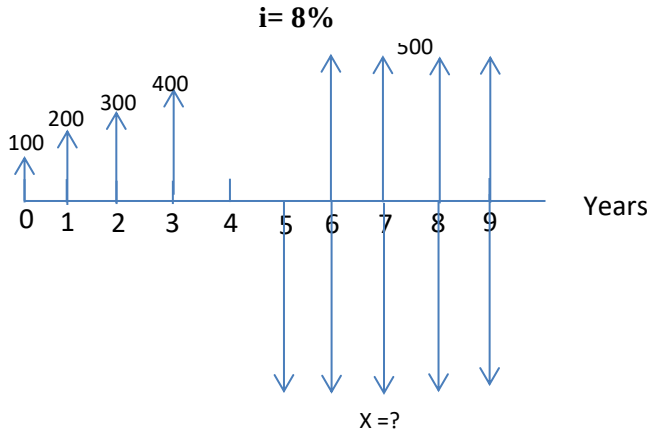
P_0 = 21,000 + 13,000 (P/A, 12%, 3) + 13,000 (P/A, 10%, 12%, 7) (P/F, 12%, 3)

(P/A, 10%, 12%, 7) = $\frac{1}{E-i} * [\frac{(1+E)^n}{(1+i)^n} - 1] = \frac{1}{0.1-0.12} * [\frac{(1+0.1)^7}{(1+0.12)^7} - 1]$ = 5.92

P_0 = 115,049.8

F_5 = 115,049.8 (F/P, 12%, 5) = 202,752.26

2- Find the value of the unknown quantity in the cash flow diagram shown below, to establish equivalences of cash inflows and outflows (i= %8).

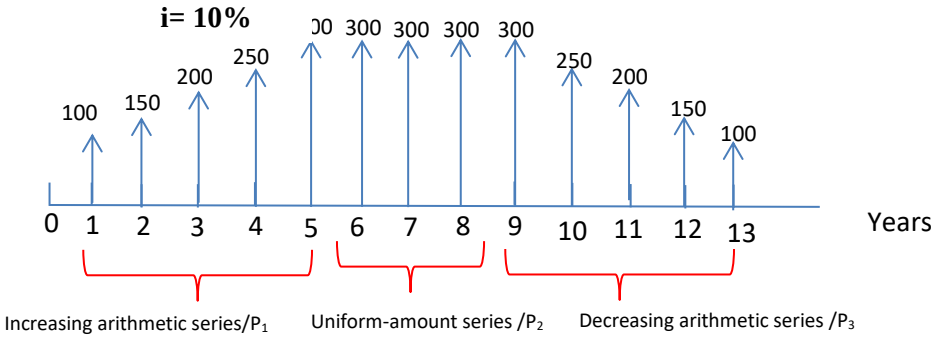


Since cash inflows and outflows are equivalent, their values are equal at a given time for example in your -1.

100(P/A, 8%, 4) + 100(P/G, 8%, 4) + 500(P/A, 8%, 4) * (P/F, 8%, 6) = X (P/A, 8*, 5) * (P/F, 8%, 5)

X = 677.17

3- What is the present value of the following cash flow diagram? (i= %10)



$P = P_1 + P_2 + P_3$ = the present value of all three series

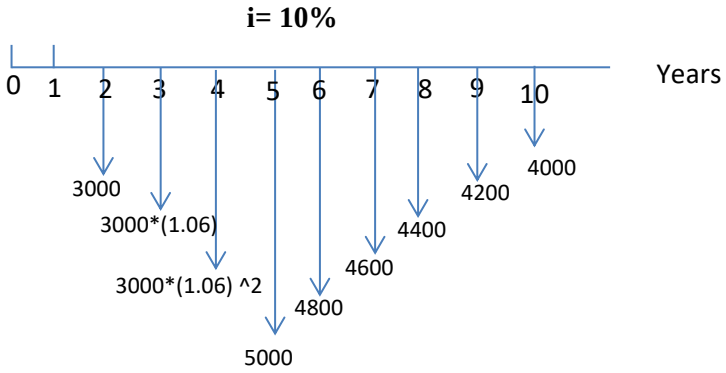
$P_1 = 100(P/A, 10\%, 5) + 50(P/G, 10\%, 5) = 722$

$P_2 = 300(P/A, 10\%, 3) * (P/F, 10\%, 5) = 461.28$

$P_3 = [300(P/A, 10\%, 5) – 50(P/G, 10\%, 5)] * (P/F, 10\%, 8) = 365.24$

P = 1,548.52

4- Find the present value of the following cash flow diagram (i= %10).



$P_g = D * (P/A, E\%, i\%, n) * (P/F, 10\%, 1) = 3{,}000 * (P/A, 6\%, 10\%, 3) * (P/F, 10\%, 1) = 3{,}000*2.629*0.9091 = 7{,}170.89$

$$(P/A, 6\%, 10\%, 3) = \frac{1}{E-i} * [\frac{(1+E)^n}{(1+i)^n} - 1] = \frac{1}{0.06-0.1} * [\frac{(1+0.06)^3}{(1+0.1)^3} - 1] \quad = 2.629$$

$P_G = [5{,}000(P/A, 10\%, 6) – 200(P/G, 10\%, 6)] * (P/F, 10\%, 4) = 13{,}550.49$

$P = P_g + P_G = 20{,}721.38$