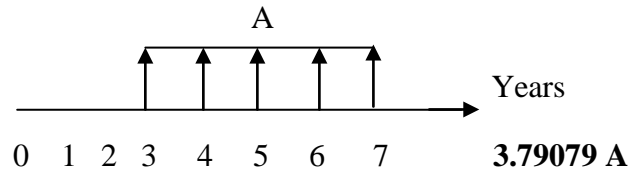


Ex.3

Ali borrows \$ 10,000 at 10% compounded annually, he pays off the loan over a 5-year period with uniform annual payments. The first payment starts from the third year. How much will be these payments?

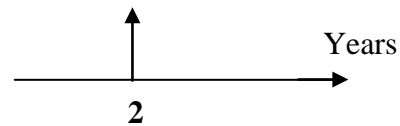


First solution:

$$P = A(P/A \ 10\%, 5) = A(3.79079) \rightarrow P \text{ at } t=2$$

$$P = F(P/F \ 10\%, 2) = 3.79079 A (0.82645) = 3.1329A$$

$$Pw = 3.1329A = 10,000 \implies A = \$ 3,191.9$$



Second solution:

$$F = P(F/P \ 10\%, 2) = 10,000 (1.21) = \$ 12,100$$

$$P = A(P/A \ 10\%, 5) \text{ OR } A = P(A/P \ 10\%, 5)$$

$$12,100 = A (3.79079) \implies A = \$ 3,191.9$$

Gradient series of cash flows

A gradient series of cash flows occurs when the value of a given cash flow is greater than or less than the value of previous cash flow by a constant amount **G**.

$$P = G (P/G \ i\%, n)$$

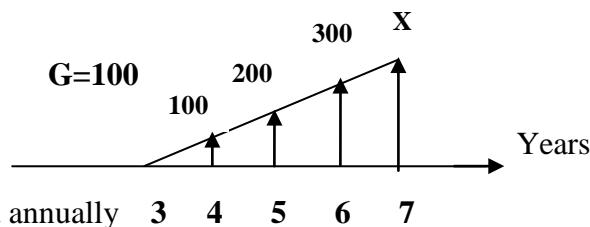
$$A = G (A/G \ i\%, n)$$

Only increasing

$$n = 7 - 3 + 1 = 5$$

$$X = G(m-t)$$

$$X = 100(7-3) = 400$$

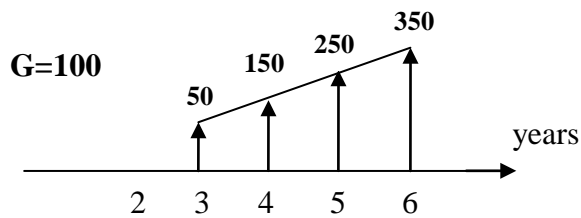


$$P = G (P/G \ i\%, n) = 100(P/G \ 10\%, 5) \rightarrow P \text{ at } t=2$$

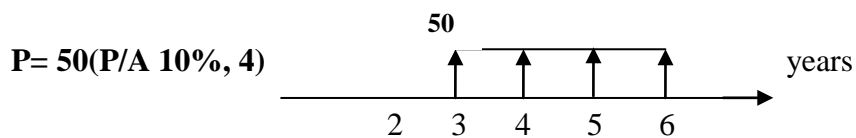
$$Pw = [100(P/G \ 10\%, 5)] \times (P/F \ 10\%, 2) = \sqrt{\quad}$$

Ex.4

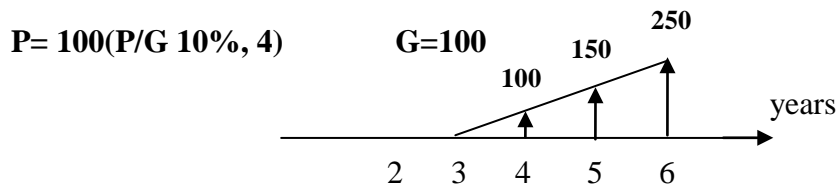
$i=10\%$ compounded annually, $Pw=??$



=



+



$P = 50(P/A\ 10\%,\ 4) + 100(P/G\ 10\%,\ 4) = \sqrt{\quad} \longrightarrow P\ \text{at}\ t=2$

$P = [50(P/A\ 10\%,\ 4) + 100(P/G\ 10\%,\ 4)] \times (P/F\ 10\%,\ 2) = \sqrt{\quad} \longrightarrow P\ \text{at}\ t=0\quad Pw$