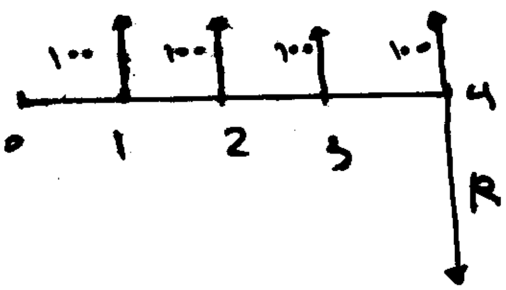
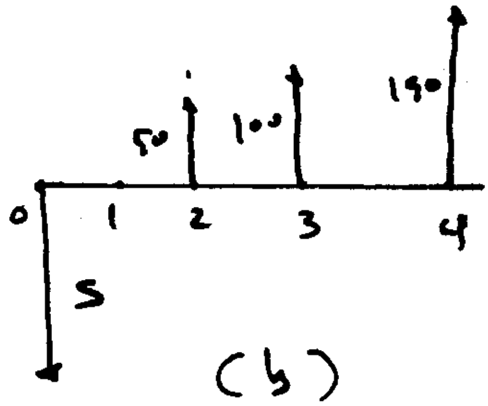
Chapter 4

(1)

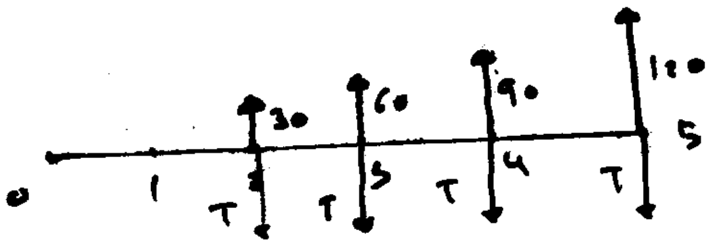
$i = 10\%$



(a)



(b)



(c)

a) $R = 100(F|A, 10\%, 4) = 100(4.641) = \$464.1$

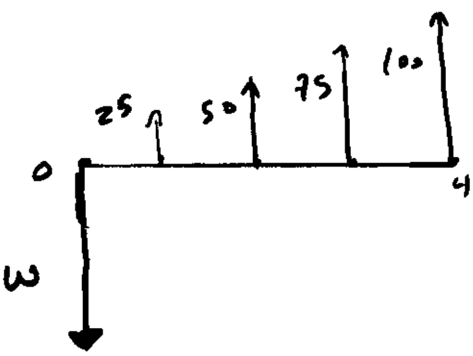
b) $S = 50(P|G, 10\%, 4) = 50(4.378) = \$218.9$

c) $T = 30(A|G, 10\%, 5)$

$= 30(1.81) = \$54.3$

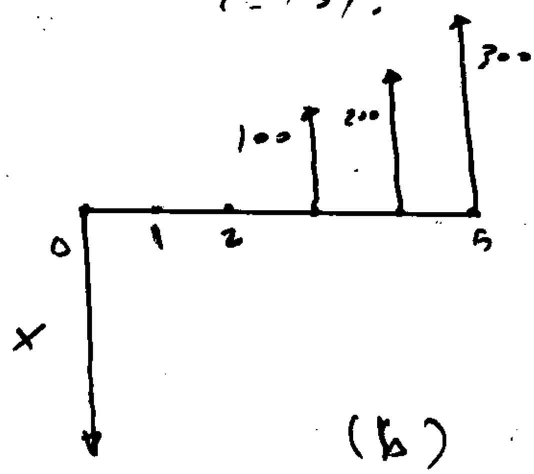
(4)

$i = 10\%$



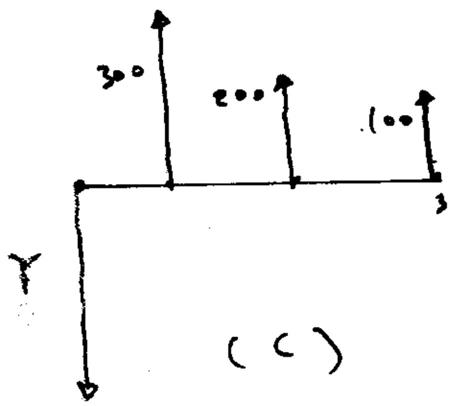
(a)

$i = 10\%$



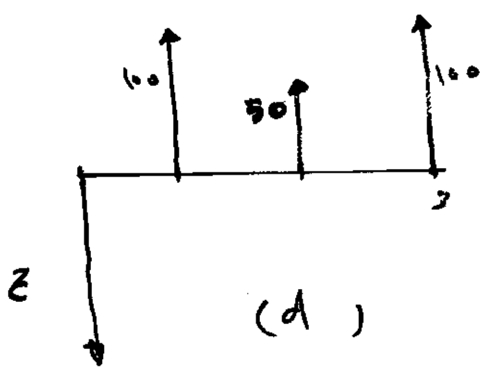
(b)

$i = 10\%$



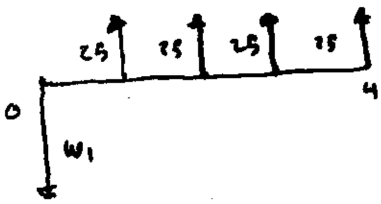
(c)

$i = 10\%$

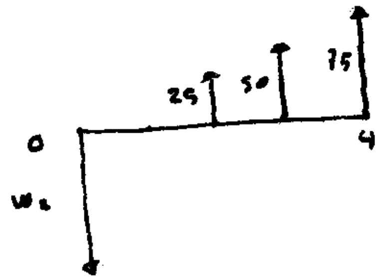


(d)

a) =



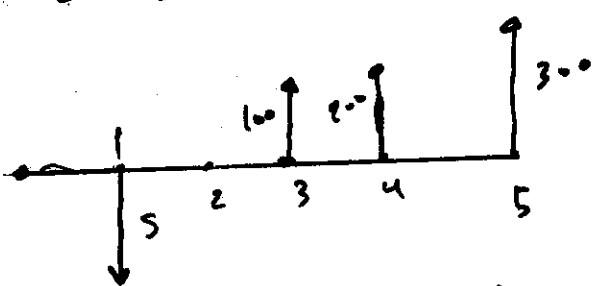
+



$W = 25(P|A, 10\%, 4) + 25(P|G, 10\%, 4)$

$= 25[3.170 + 4.378] = \$188.63$

b)



$S = 100(P|G, 10\%, 4)$

$X = \frac{S}{1.1} \Rightarrow X = \$398$

another method:

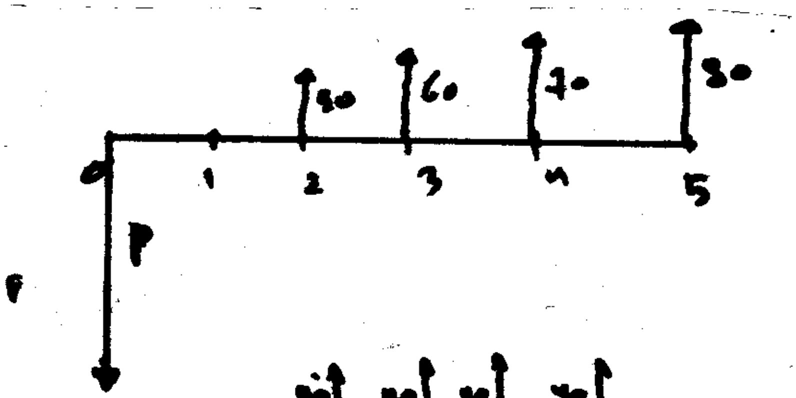
$$X = 100(P|F,10\%,3) + 200(P|F,10\%,4) + 300(P|F,10\%,5)$$

$$= 100(0.7513) + 200(0.6830) + 300(0.6209) = \$398$$

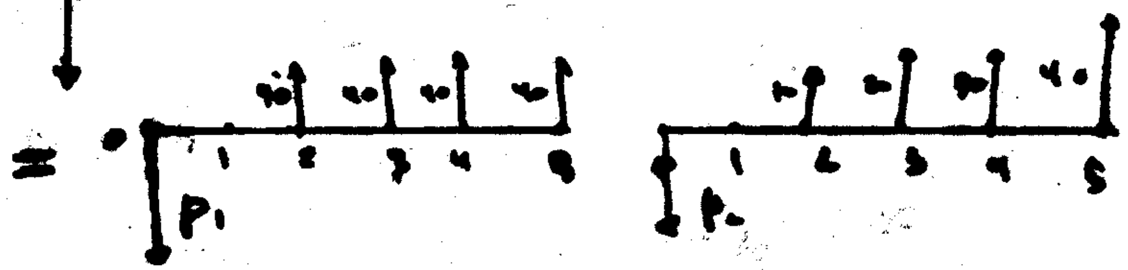
c) $$Y = 300(P|F,10\%,1) + 200(P|F,10\%,2) + 100(P|F,10\%,3)$$

d) $$Z = 100(P|F,10\%,1) + 30(P|F,10\%,2) + 100(P|F,10\%,3)$$

(7) $i = 15\%$

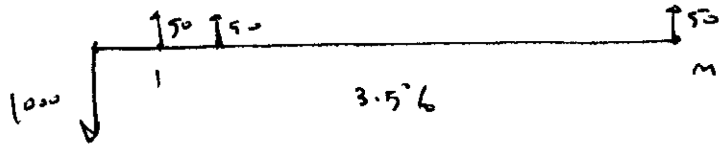


=



$$P_1 = \left(\frac{1}{1.15}\right) 40(P|A,15\%,4) + 10(P|G,15\%,5)$$

(10)

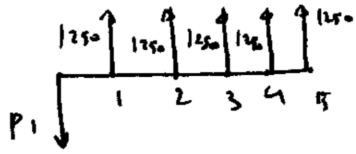
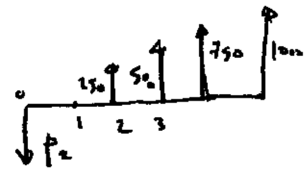


$1000 = 50\,(P|A, 3.5\%, m)$

$\Rightarrow 20 = (P|A, 3.5\%, m)$, from the 3.5% interest table

$\boxed{m = 35}$

(17) present worth of outflow = present worth of the inflow

present worth of the outflow = 3000 +  - 

$= 3000 + 1250\,(P|A, 10\%, 5) - 250\,(P|G, 10\%, 5)$

$= 3000 + 1250\,(3.791) - 250\,(6.862)$

$= \$6023.25$

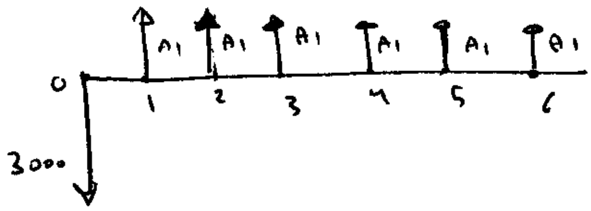
present worth of the inflow $= P + 250\,(P|F, 10\%, 7) + 750\,(P|F, 10\%, 8)$

$= P + 250(0.5132) + 750(0.4665)$

$= P + 478$

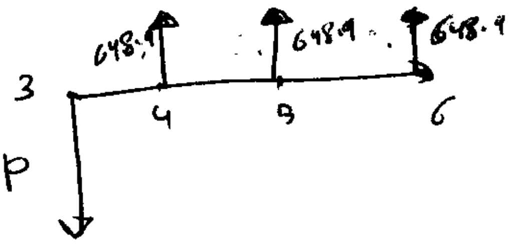
$\Rightarrow P = 6023.25 - 478 = \boxed{\$5545.25}$

(34)

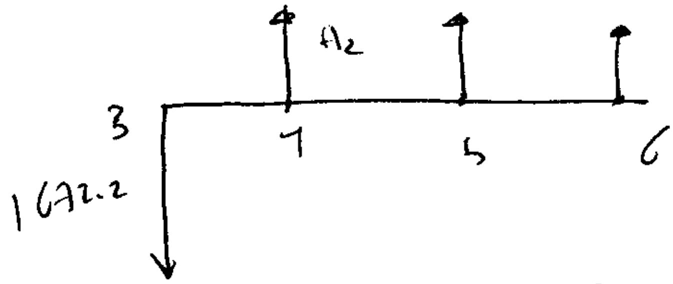


$$A_1 = 3000\,(A|P, 8\%, 6)$$
$$= \boxed{\$\,648.9}$$

The amount owed by the end of the third year is the present worth of the 3 remaining payments



$$P = 648.9\,(P|A, 8\%, 3) = 1672.2.$$



$$A_2 = 1672.2\,(A|P, 7\%, 3)$$
$$= 1672.2\,(0.3811) = \boxed{\$\,637.27}$$

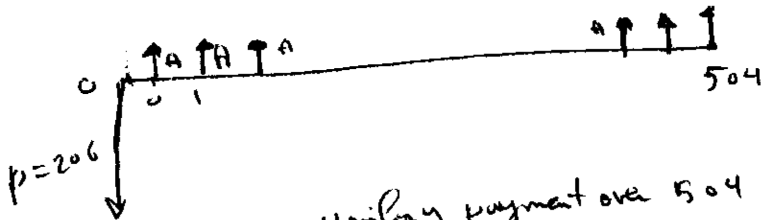
(58) $\left(\frac{10.87}{1000}\right)(12) = 13\%$

(61) a) $i_a = \left(1 + \frac{0.1}{4}\right)^4 - 1 \simeq 10.3\%$

b) $(1+i)^{252} = 1.103$

$\Rightarrow i = 0.000389$

c)



uniform payment over 504 periods.

$A = P\left[\frac{i(1+i)^{504}}{(1+i)^{504} - 1}\right]$

$\Rightarrow A = 206\left[\frac{0.000389(1+0.000389)^{504}}{(1+0.000389)^{504} - 1}\right]$

$\simeq \$0.45$

(116) $1307 = 1000(1+i)^{20} \Rightarrow i = 0.0135$

$\Rightarrow$ nominal annual rate $= 4(0.0134) \simeq 5.4\%$

and the effective rate:

$i_a = (1 + 0.0135)^4 - 1 \simeq 5.5\%$