HW #1

1) $A_K(t) = 3t^2 + 2t + 800$ $\quad i_n \quad \downarrow \; n \geq 17$

$$i_n = \frac{A_K(n) - A_K(n-1)}{A_K(n-1)} = \frac{3n^2+2n+800 - 3(n-1)^2+2(n-1)+800}{3(n-1)^2+2(n-1)+800}$$

$$= \frac{6n-1}{(n-1)(3n-1)+800} \quad ; \; n \geq 1$$

$$i_{n+1} - i_n = \frac{6(n+1)-1}{n(3n+2)+800} - \frac{6n-1}{(n-1)(3n-1)+800}$$

$$= \frac{18n^2 - 12n + 4805}{((n(3n+2)+800)(n-1)(3n-1)+800}$$

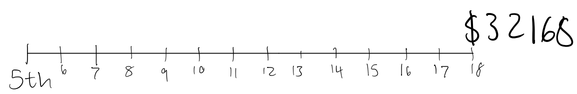
② monthly

$.5\%$ yearly?

$0.5 \times 12 = 6\%$ $i = 0.06$

③ $32,168

$i = 6.2\%$



$$K(1+i)^t = 32168$$

$$\frac{K(1.062)^{13}}{(1.062)^{13}} = \frac{32168}{(1.062)^{13}}$$

$$K = 14716.53$$

4

$i_{[2,4.5]} = 20\%$

$d_{[1,3]}$?

$a(t) = (1+i)^t$

$$0.2 = i_{[2,4.5]} = \frac{a(4.5) - a(2)}{a(2)} = \frac{a(4.5)}{a(2)} - 1$$

$$= (1+i)^{2.5} - 1$$

$$1+i = 1.2^{0.4}$$

$$d_{[1,3]} = \frac{a(3) - a(1)}{a(3)} = 1 - \frac{a(1)}{a(3)}$$

$$= 1 - \frac{1}{(1+i)^2}$$

$$= 1 - 1.2^{-0.8}$$

$$= 0.13572$$

$$d_{[1,3]} = 1 - \frac{1}{1+i[1,3]}$$

$$= 1 - \frac{1}{(1+i)^2}$$

$$= 1 - 1.2^{-0.8}$$

$$= 0.13572$$