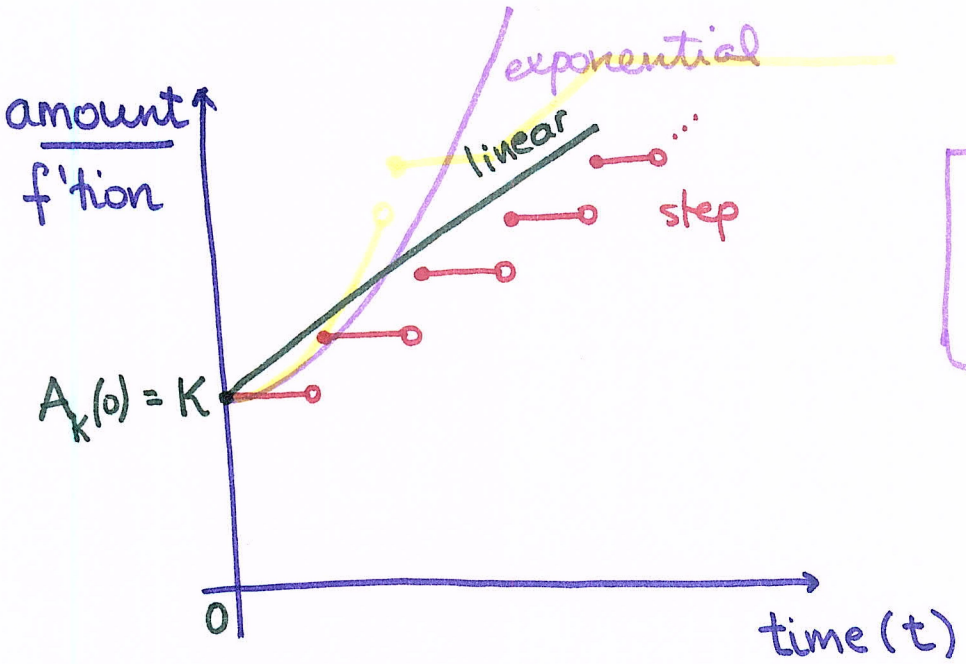
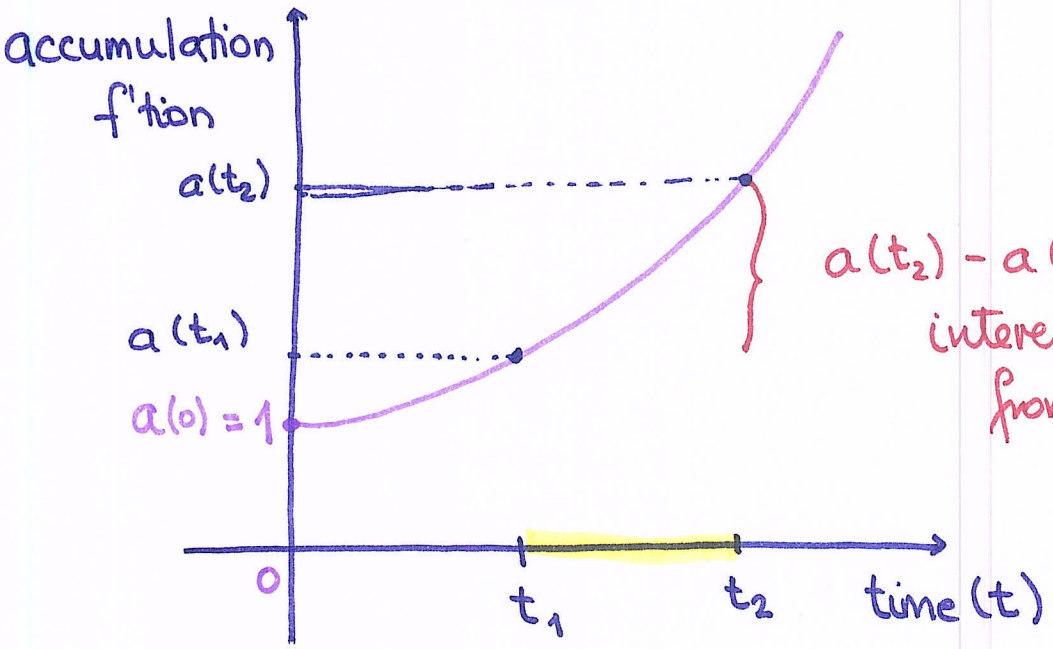


F: January 24th, 2020.



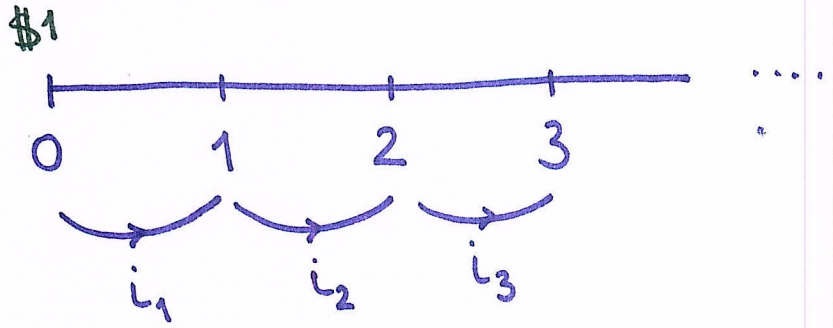
$a(t_2) - a(t_1)$ .... amt of interest earned from t_1 to t_2

Def'n.

$$i_{[t_1, t_2]} := \frac{a(t_2) - a(t_1)}{a(t_1)}$$

... the effective interest rate during $[t_1, t_2]$

The timeline



Balance: $a(1) = 1+i_1$

$$a(2) = a(1)(1+i_2)$$
$$= (1+i_1)(1+i_2)$$

$$a(3) = a(2)(1+i_3)$$
$$= (1+i_1)(1+i_2)(1+i_3)$$

Problem. [varying effective interest rates]

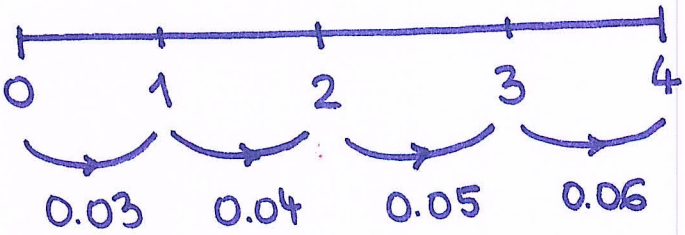
Roger deposits $K = 300$ @ time $\cdot 0$ into a savings account governed by the following effective interest rates:

$$i_n = 0.02 + 0.01 \cdot n \quad , \quad n = 1, 2, 3, \ldots$$

Find $A_K(4)$.

→: Since it's not indicated otherwise, we have

$$A_k(4) = K \cdot a(4)$$

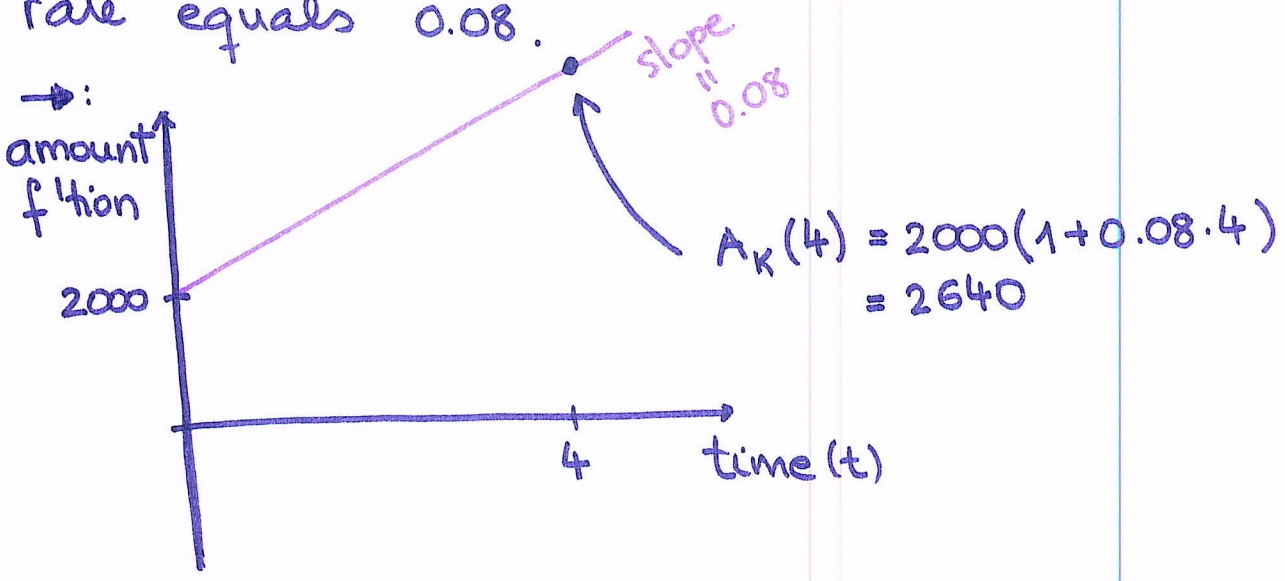


$$a(4) = (1+i_1)(1+i_2)(1+i_3)(1+i_4)$$
$$= (1.03)(1.04)(1.05)(1.06)$$

$$A_k(4) = 300 \cdot a(4) = 357.67$$ ■

Problem. [SIMPLE INTEREST I]

Find the accumulated value of \$2000 invested for 4 years if the simple interest rate equals 0.08.



Q: What's the amount of interest earned?

$2640 - 2000 = 640$

■

Problem. [SIMPLE INTEREST II]

At what rate of simple interest will \$500 accumulate to \$615 in 2 ½ years?

→:

$$615 = 500\,(1 + s \cdot (2.5))$$

$$s = \frac{615 - 500}{2.5} = 0.092 \quad \blacksquare$$