4. Exercise

Recalculate the following equations (without b_2):

- eq. (3) 1st row
- eq. (4) 1st row
- eq. (5) 1st row
- eq. (6) 1st row
- eq. (7a-d) without last term
- eq. (8a-d)
- eq. (11a-c)
- eq. (12a-c)

Hint: $\frac{\partial \alpha_s}{\partial t} = b_0 \alpha_s^2 + b_1 \alpha_s^3, \quad t = \log \mu$

$$\Rightarrow \int_{\log \mu_0}^{\log \mu} dt = \int_{\alpha_s(\mu_0)}^{\alpha_s(\mu)} \frac{d\alpha_s}{b_0 \alpha_s^2 + b_1 \alpha_s^3}$$