

(3.9) How many ideal stages in an ordinary cascade are required at an  $\alpha = 6$  to produce water in which 10% of the hydrogen is deuterium?

The following data are given:

$$\alpha := 6 \quad x_p := \frac{10}{100}$$

From data in Table 3.1 we also know that:

$$x_f := \frac{0.0155}{100}$$

Apply eqn. (3.66) to calculate the minimum number of stages needed:

$$N_p := \frac{\ln \left[ \frac{x_p (1 - x_f)}{x_f (1 - x_p)} \right]}{\ln(\alpha)} \quad N_p = 3.669 \quad \text{stages, but } N_p \text{ must be integer, hence: } N_p = 4$$