**Exercise 8**

**Stepwise compression**

A gas stream is compressed from 10 to 70 bar. Data as in Example 8.1.

Mass flow: 50 kg / s

Molecular weight: 16.83

Inlet temperature: 30C

Adiabatic exponent: 1.28

Example 6.1 showed high outlet temperature. We consider compressing optimally over two steps and cooling the flow from the first step down to 10C, before entering the 2nd stage.

a) Estimate outlet temperatures from stage 1 and from stage 2

b) Estimate thermodynamic effect

c) Plot outlet temperature from step 2 and thermodynamic power, as a function of intermediate stage pressure