

Remarks: See §7.3, page 255 till 269

Also see §5.3, page 168 till 173 (three-hinged frames)

Answers:

a. The resulting water pressure on a single door:

$$R^{(AC)} = R^{(BC)} = 80\sqrt{10} \text{ kN} = 253 \text{ kN}$$

b. Forces on the lockwall (red forces in the figure):

in A: 320 kN ($\leftarrow$); 240 kN ($\downarrow$)

in B: 320 kN ($\rightarrow$); 240 kN ($\downarrow$)

c. Forces between the two doors in c:

compressive force of 400 kN (line of action c)

Remark:

The doors can be seen as a three-hinged frame.

Analytic calculation recommended.

A graphical check is performed in the figure.

