

Remarks: See §5.7, page 186 till 189

Answers: All forces in kN and moments in kNm

The normal force in a bar positive as a tensile force and negative as a compressive force

$$A_h = 0; A_v = 15 (\downarrow); B_v = 15 (\uparrow)$$

$$N^{(a)} = N^{(e)} = -30\sqrt{2} = -42,43$$

$$N^{(b)} = N^{(c)} = N^{(d)} = -30$$

Hints:

Take the normal force $N^{(c)}$ in (c) is N .

The force equilibrium of the joint where bars (a) till (e) join give you:

$$N^{(b)} = N^{(c)} = N^{(d)} = N$$

$$N^{(a)} = N^{(e)} = N\sqrt{2} = -42,43$$

Then isolate ASB and draw all of the forces working on it, with the forces from bars (b) and (d) as a function of N . From the equilibrium of beam ASB you can find support reactions in A and B and normal force N .