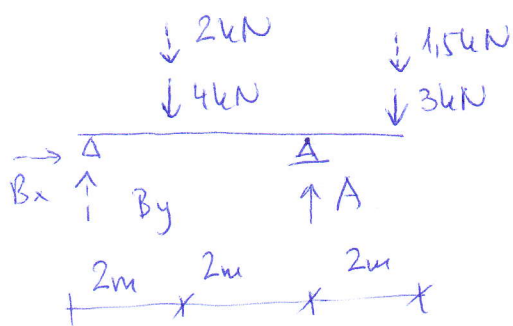


Exercise 4

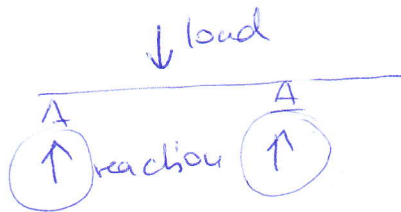
Find the maximum of the support reactions A and B_y



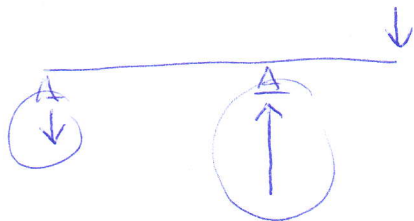
safety factors are $\gamma = 1,35$ or $0,9$
for dead loads
 $\gamma = 1,5$ (or ϕ) for live loads

Maximum of A we have to decide if we have to choose small or big values of the loads to get as large support reaction as possible.

Any force in the middle has such an effect:



and any load at the end of the cantilever has this effect



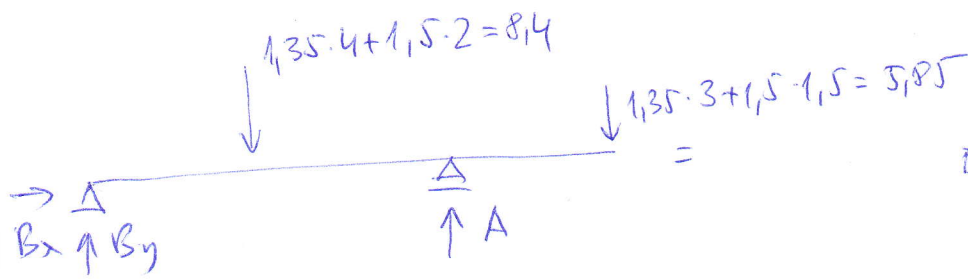
Both loads increase the support reaction at A \Rightarrow we have to choose large values of all loads to get the maximum of A

The first load also increases B_y but the second load makes B_y smaller \Rightarrow we have to choose large load and small load to get the maximum of B_y.

Now we are ready to make calculations!

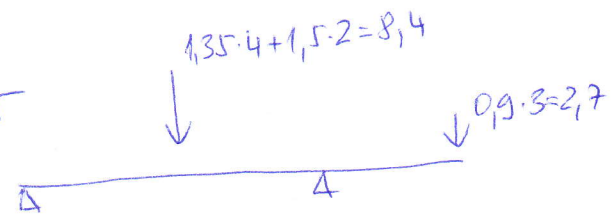
Maximum of A

~~load~~ load value is



Maximum of B

load value is



now we can write equilibrium equations and find the results:

$$B_x = \phi$$

$$\boxed{A = 12,97}$$

$$B_y = 1,275$$

$$B_x = \phi$$

$$A = 8,25$$

$$\boxed{B_y = 2,85}$$