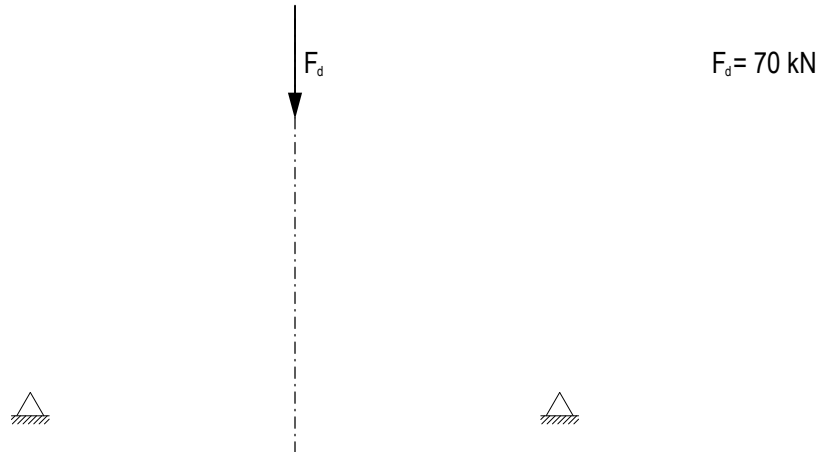


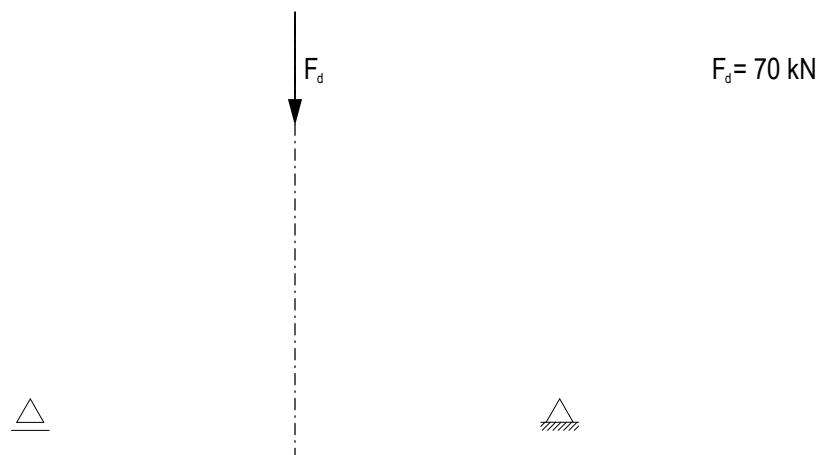
Task 1 Span

Design the form of a possible structure for each of the given loading cases and draw the corresponding force diagram. Pay attention to the support conditions. Divide each reaction force in its horizontal and vertical component. Finally, mark tension forces in red, compression forces in blue and reaction forces in green.

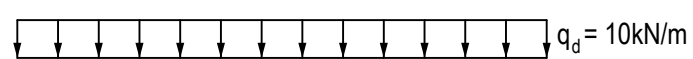
a)

*form diagram 1:100**force diagram 1cm $\hat{=}$ 10kN*

b)

*form diagram 1:100**force diagram 1cm $\hat{=}$ 10kN*

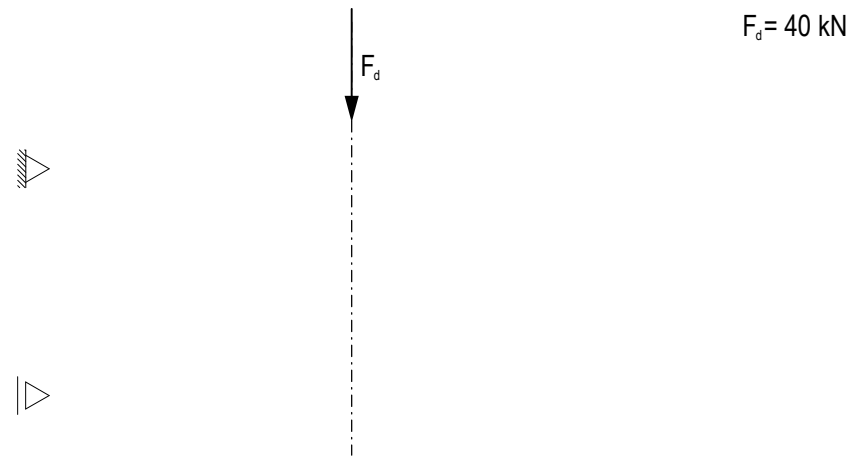
c)

*form diagram 1:100**force diagram 1cm $\hat{=}$ 10kN*

Task 2 Cantilever

Design a possible arch-cable structure for the given load cases and draw the corresponding force diagram. Indicate the directions of the reaction forces and mark tension forces in red, compression forces in blue and reaction forces in green.

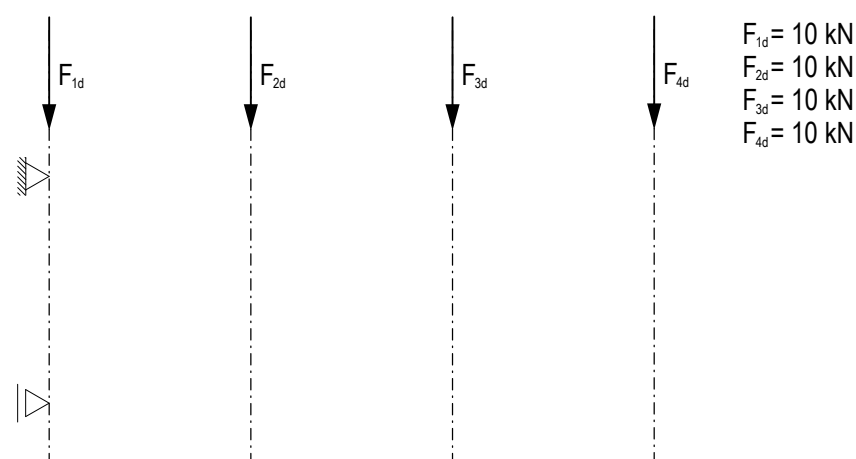
a)



form diagram 1:100

force diagram 1cm ≙ 10kN

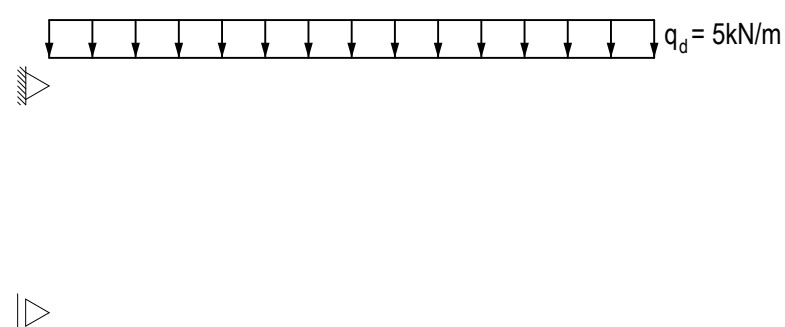
b)



form diagram 1:100

force diagram 1cm ≙ 10kN

c)



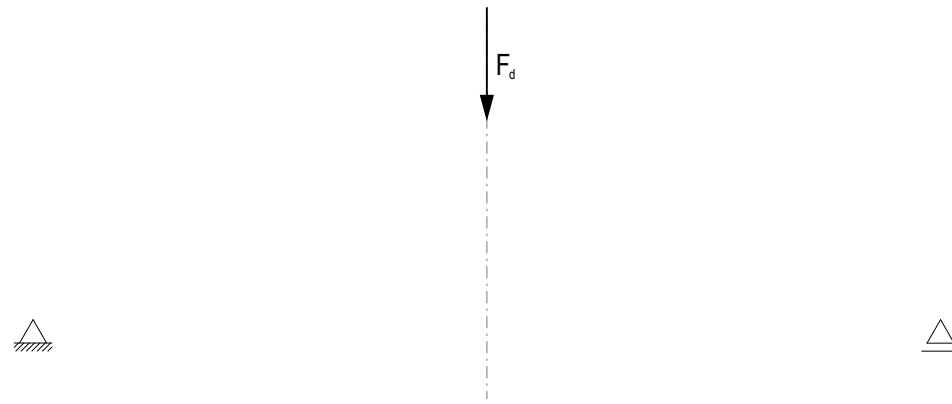
form diagram 1:100

force diagram 1cm ≙ 10kN

Creative Task Qualitative Force Flow

Below, there are five situations with different applied loads. Sketch a possible force flow and try to find the direction of the reaction forces by qualitative thinking. Draw tension forces in red, compression forces in blue and reaction forces in green. (qualitative = without force diagram)

a)



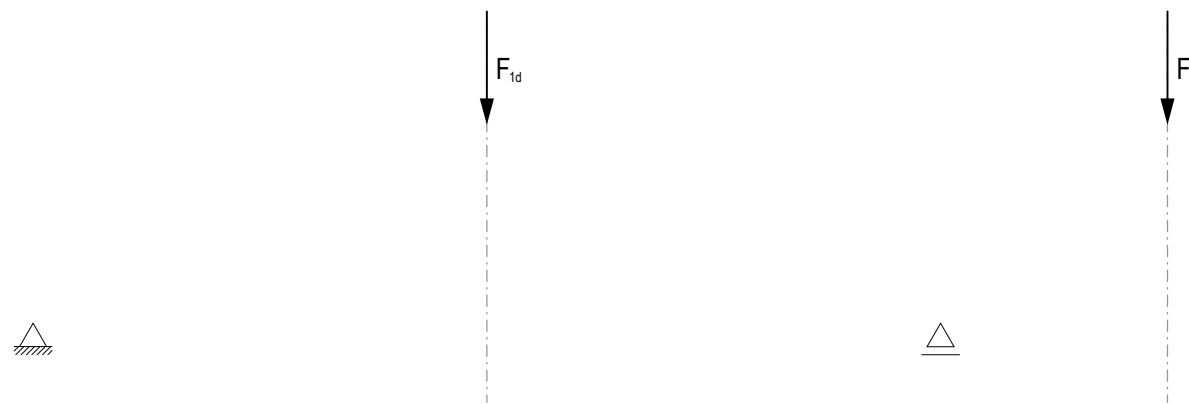
form diagram 1:100

b)



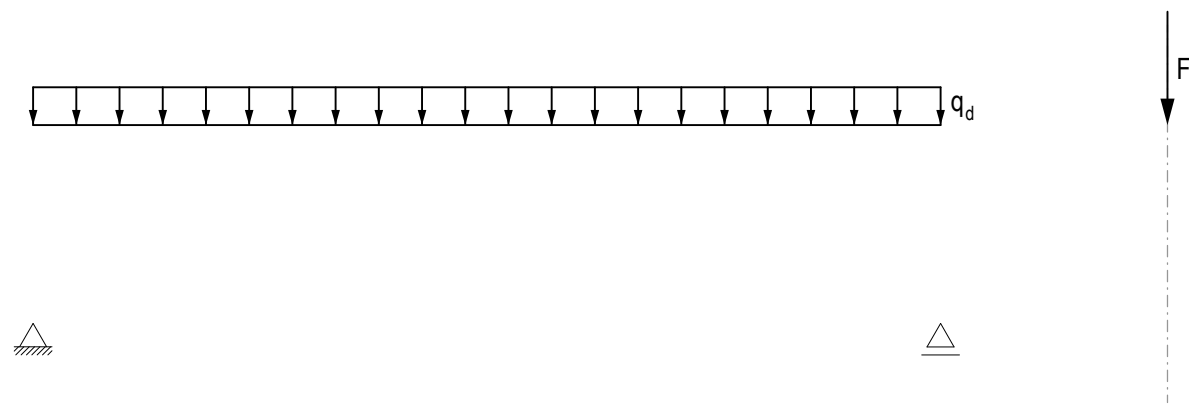
form diagram 1:100

c) $F_{1d} = F_{2d}$



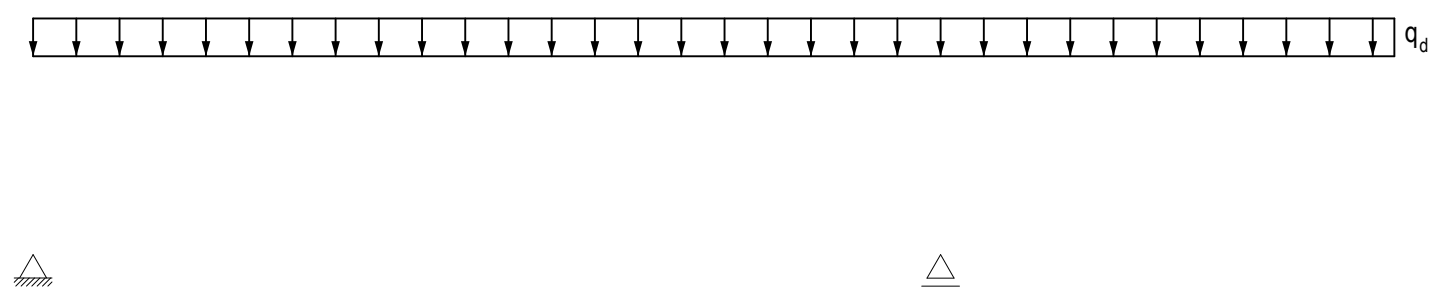
form diagram 1:100

d) $R = F_d$



form diagram 1:100

e)



form diagram 1:100