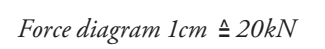
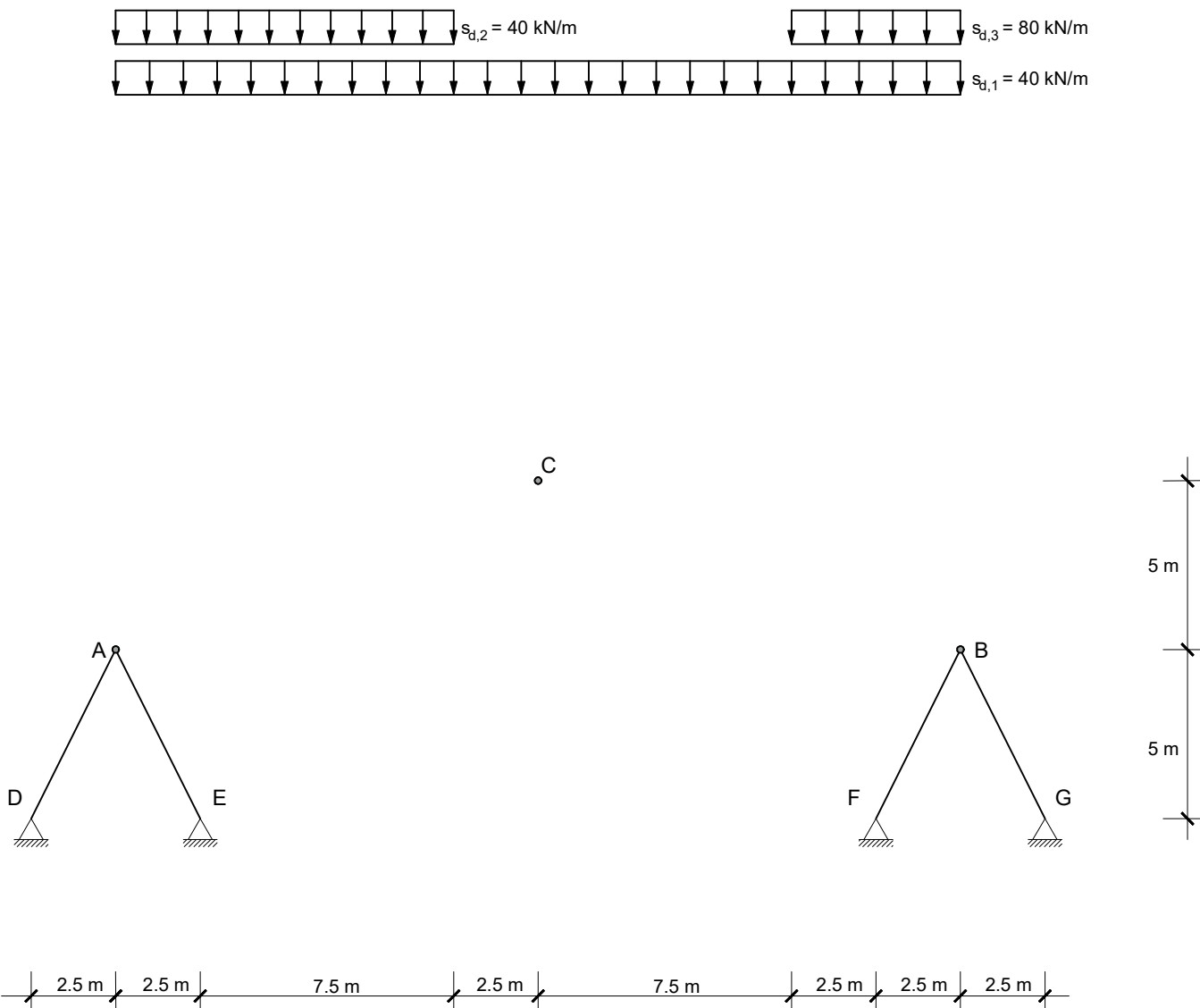


Draw the direction and determine the magnitude and direction of the reaction force. (See Fig. 6)



Task 2 Finding the thrust line using Partial Closing Strings

There is a given case with two support points A and B. Find the thrust line of the arch that spans between supports A and B and passes through point C. Draw the form and force diagrams. How big are the reaction forces D to G? Use partial closing strings as help for your construction. (See Fig. 8)



form diagram 1:200

o

D=
E=
F=
G=

force diagram 1cm=200kN

Task 3 Finding the thrust line using Superposition

Find the thrust line through points A, B and C in cases a) and b). Draw the corresponding force diagrams.
Draw the thrust line and the corresponding force diagram for case c), that consists of the combination of a) and b) by applying superposition.
Indicate the dominant stress in the arch as well as the support reactions. (See Fig. 7)

a)

Diagram of a parabolic arch with supports A_L and B_L , a central point C , and a single distributed load $q_d = 4 \text{ kN/m}$.

form diagram 1:250

force diagram 1cm $\hat{=}$ 10kN

b)

Diagram of a parabolic arch with supports A_R and B_R , a central point C , and two stacked distributed loads: $q_d = 8 \text{ kN/m}$ and $g_d = 4 \text{ kN/m}$.

form diagram 1:250

force diagram 1cm $\hat{=}$ 10kN

c)

Diagram of a parabolic arch with supports A and B , a central point C , and two stacked distributed loads: $q_d = 8 \text{ kN/m}$ and $g_d = 4 \text{ kN/m}$.

form diagram 1:250

force diagram 1cm $\hat{=}$ 10kN