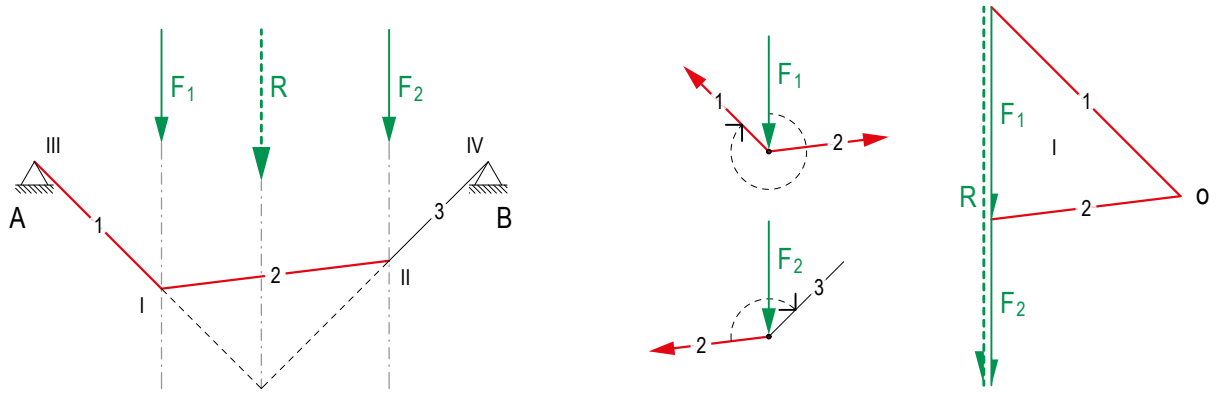


2.2

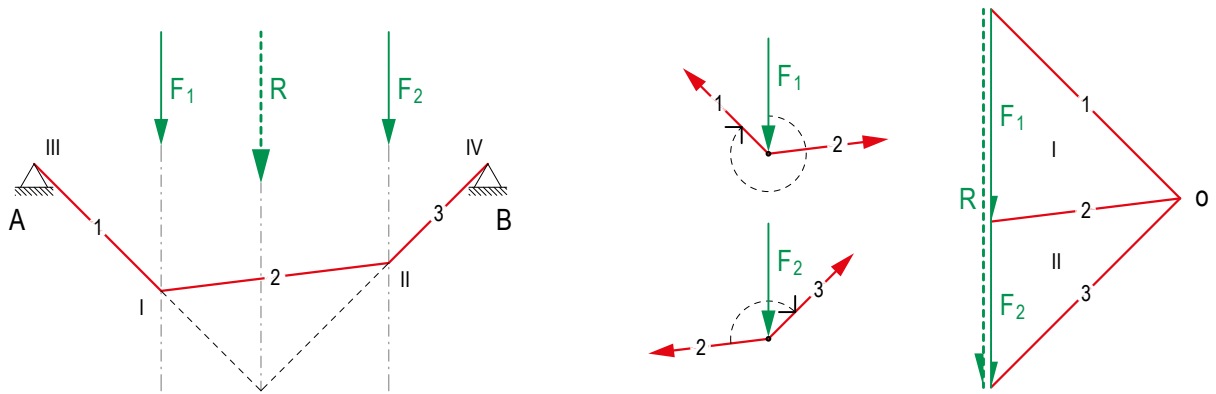
Analysis: Step by step

Given is the form of a structure between the two supports A and B. The two acting point loads F_1 and F_2 divide the cable into three segments, since there is always a change of direction where a force is applied. We are looking for the internal forces in the cable and the two reaction forces.

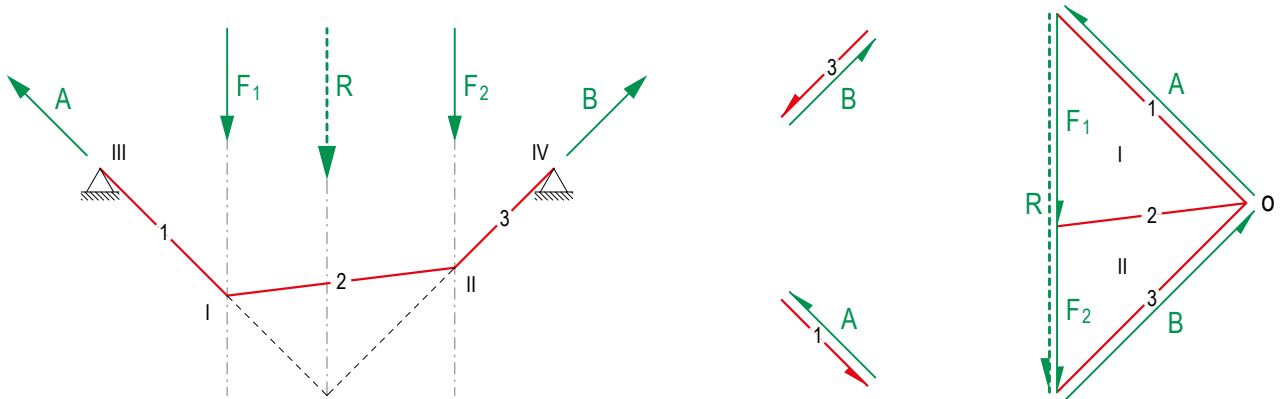
The elements in node I are transferred clockwise into the force diagram, starting with the first known force. The magnitude and the direction of F_1 are known. At the end of F_1 the first unknown element (2) is applied. Since the exact length of this element is still unknown, the second and last element (1) is placed at the beginning of F_1 . F_1 , together with the elements 1 and 2 form the force polygon of node I. With the help of the direction in force polygon I given by F_1 , it can now also be checked whether 1 and 2 are compression or tension elements.



In node II as well, the first known force is used; in this case, this would be element 2, which is a pulling force that always acts away from the node and therefore determines the direction to the left. At the end of 2, F_2 is applied. The last unknown element of the node (3) closes the force polygon II.



Nodes III and IV are required to find the reaction forces. In node III only element 1 and the reaction force A are acting. 1 is a tensile element and A acts accordingly in the opposite direction. The magnitude of the two forces is the same. The same is true for node IV with element 3 and the reaction force B.



form diagrams 1:100

force diagrams 1cm ≙ 10kN