

Remarks: See §4.2, page 120 till 126

Answers:

- a. Number of degrees of freedom
 - A. *hinged support* - 1 displacement possible:
rotation
 - B. *bar support* - 2 displacements possible:
Rotation + displacement perpendicular to the bar
 - C. *roller support* - 2 displacements possible:
Rotation + displacement in direction of the roller track.
 - D. *fixed support* – no displacements possible
- b. Number of prescribed displacements
 - A. 2; the two components of the displacement are zero
 - B. 1; the displacement in direction of the bar is zero
 - C. 1; the displacement perpendicular to the roller track is zero
 - D. 3; the rotation and both components of the displacement are zero.
- c. forces that can develop freely (support reactions)
 - A. 2; the two components of a force
 - B. 1; a force in direction of the bar
 - C. 1; the force perpendicular to the roller track
 - D. 3; two components of a force and a fixed-end moment
- d. prescribed forces
 - A. 1; a couple (moment) is zero
 - B. 2; a couple (moment) and the force perpendicular to the bar are zero
 - C. 2; a couple (moment) and the force parallel to the roller track are zero
 - D. 0; none of the three forces is known.