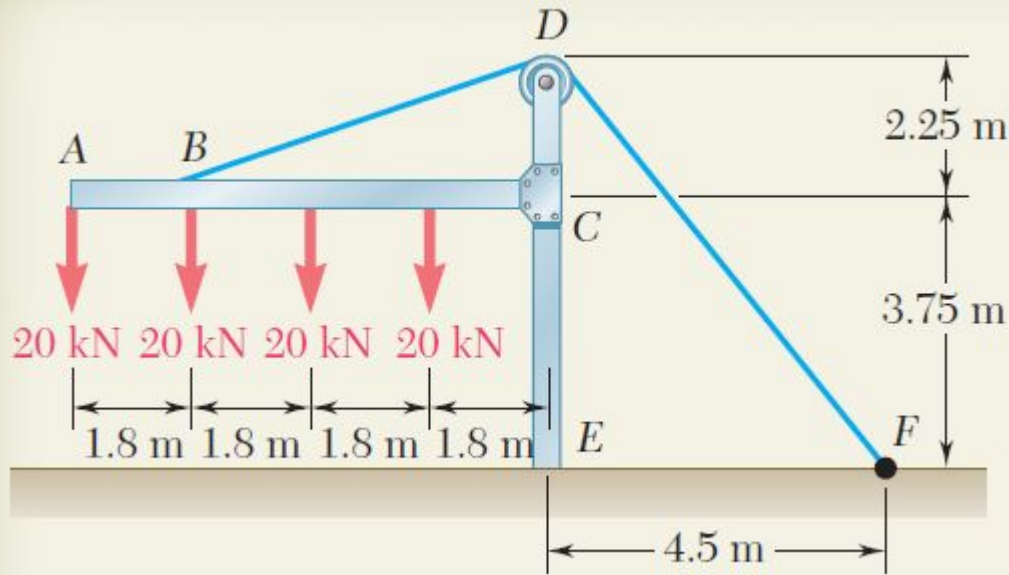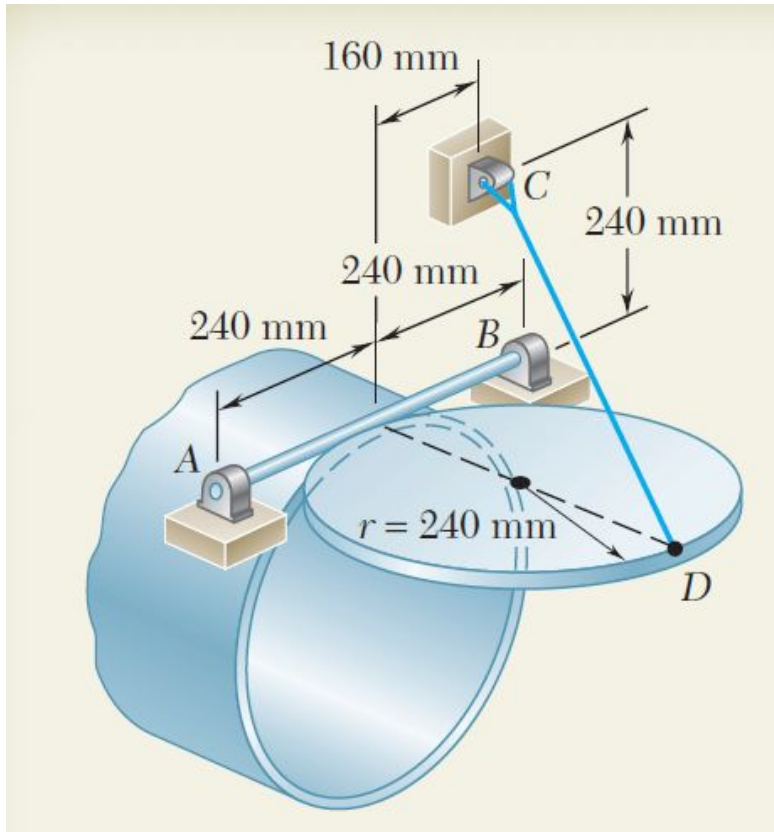# Tutorial Sheet 3 (Chapter 4, Vector Mechanics)

Tut - 3.1: Problem 1

The frame supports a part of the roof of a small building. The tension in the cable BDF is 150 kN, determine the reaction at the fixed end E.
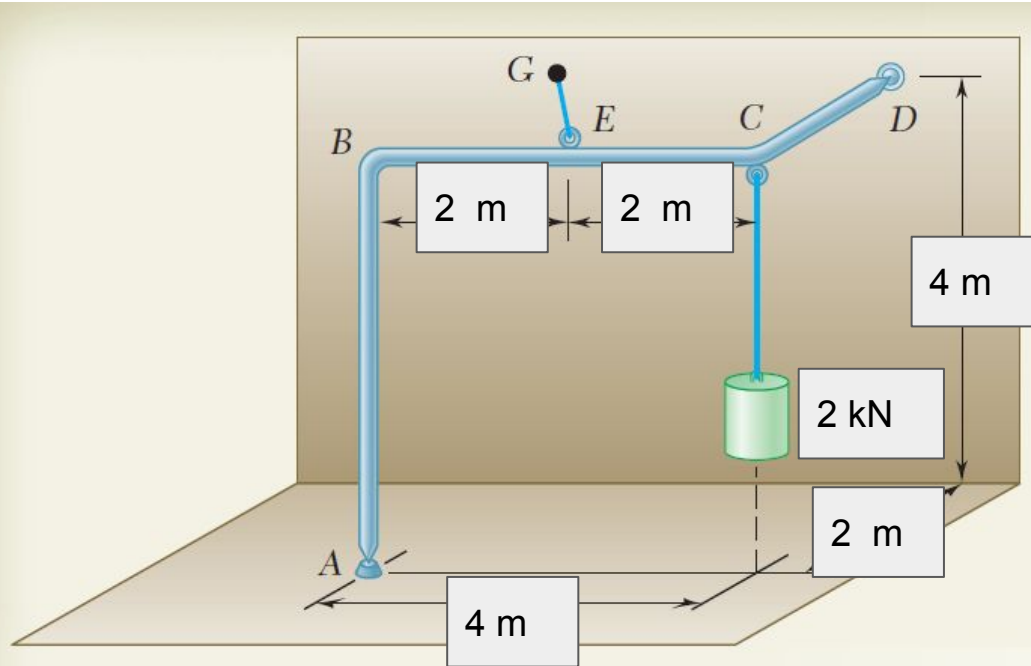
Tut - 3.1: Problem 2

160 mm

C

240 mm

240 mm

240 mm

B

A

r = 240 mm

D

A uniform pipe cover of radius 240 mm and mass 30 kg is held in a horizontal position by the cable CD. Determine the tension in the cable and the reactions at A and B.

Assume that the bearing at B does not exert any axial thrust,

Tut - 3.1: Problem 3 (Homework)

A 2 kN load hangs from the corner C of a rigid piece of pipe ABCD. The pipe is supported by the ball-and-socket joints A and D, fastened, to the floor and to a vertical wall. The pipe is also connected by a cable attached at the midpoint E of the portion BC and at a point G on the wall. Determine (a) where G should be located if the tension in the cable is to be minimum, (b) the corresponding minimum value of the tension.