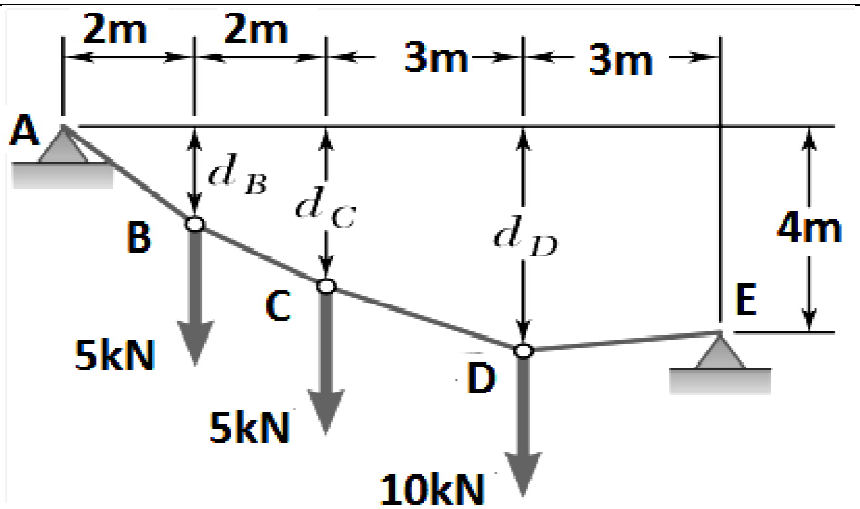
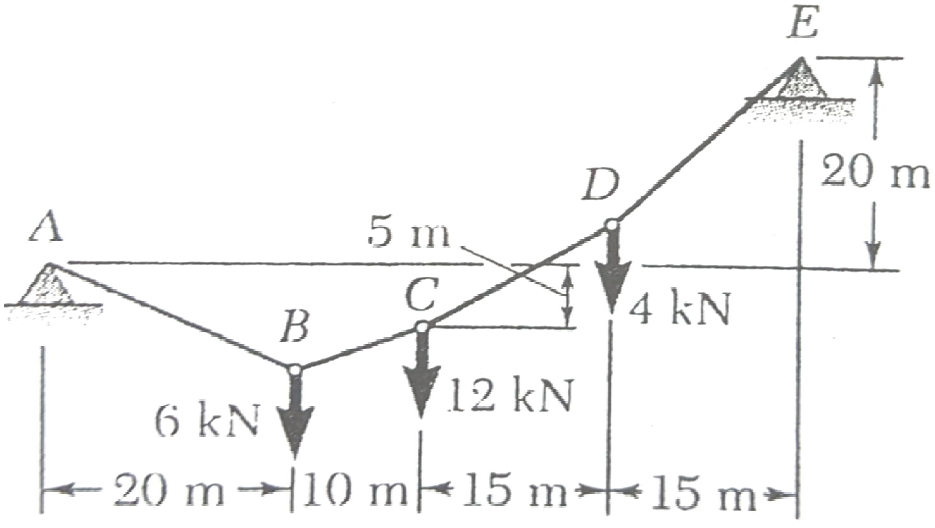
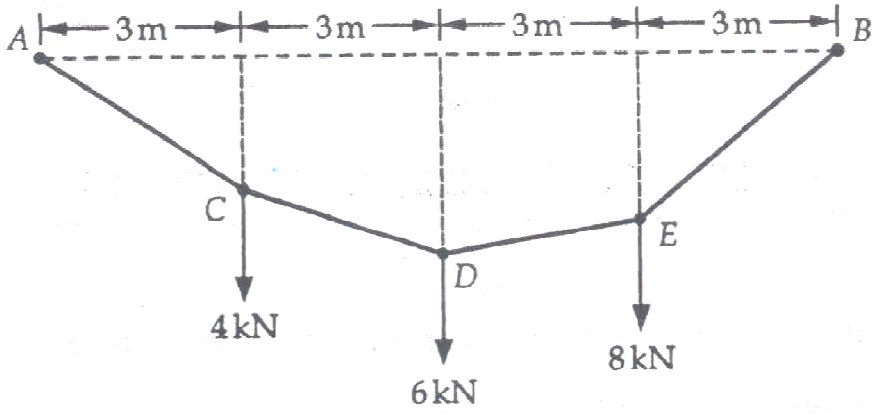
Civil Engineering Department
S. V. National Institute of Technology, Surat

Engineering Mechanics Tutorial : Cables

01	Determine distance d_C for which portion DE of the cable is horizontal, also determine the corresponding reactions at A and E. [Ans : d_C = 2.8 m, A_X =25 kN, A_Y = 20 kN, E_X = 25 kN, E_Y = 0]
	
02	The cable AE supports three vertical loads from the points as indicated. If point C is 5m below the left support, determine (a) The elevation of points B and D (b) The maximum slope and the maximum tension in cable. [Ans: Y_B = 5.56 m below A, Y_D =5.83 m above A, Tmax = 24.8 kN]
	

03	A cable AB supports three loads as shown in figure given below. If the dip at the central load is estimated to be 2 m, work out the components of reaction at A, the sag under 4 kN load and the tension in portion CD of the cable [Ans: A_y =8 kN, A_x =18 kN, Y_C = 1.33 m, T_{CD} = 18.5 kN]
	
04	A cable supports concentrated loads of 500 kN and 200 kN as shown in figure. If the maximum tension in the cable is 1000 kN, determine (a) Support reactions and tensions in each segment of the cable. (b) Vertical distance Y_B and Y_C from level of support A (c) Total length L of the cable. [Ans: A_Y = 382 kN, A_X = 924 kN, D_Y = 318 kN, D_X = 924 kN, T_{AB} = 1000 kN, T_{BC} = 931 kN, T_{CD} = 977 kN, Y_B = 4.97m, Y_C = 3.44m, L= 35.7 m]