

## PROBLEM 10.1

For the beam and loading shown, determine the reactions at (a) A, (b) B, and (c) D.



## SOLUTION

Free-body diagram:

## EQUATIONS OF EQUILIBRIUM

1.  $\sum F_x = 0$ : Reaction at A is zero.

2.  $\sum F_y = 0$ : Reaction at B is 12 kN (up).

3.  $\sum M_A = 0$ : Reaction at D is 10 kN (up).

4.  $\sum M_B = 0$ : Reaction at A is zero.

5.  $\sum M_D = 0$ : Reaction at B is 10 kN (up).

6.  $\sum M_C = 0$ : Reaction at B is 12 kN (up).

7.  $\sum M_E = 0$ : Reaction at D is 10 kN (up).