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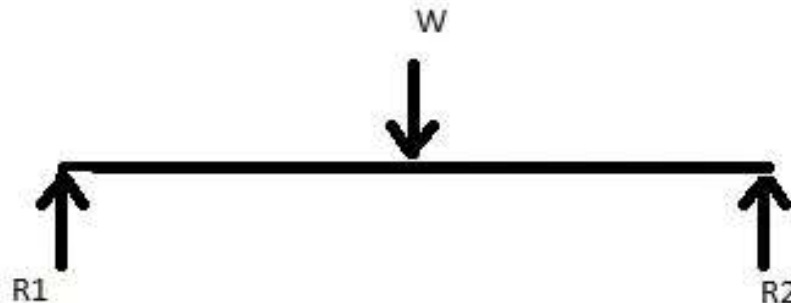
UNIT II - SHEAR FORCE AND BENDING MOMENT

Simply supported beams



Simply supported beams

A simply supported beam is a type of beam that has pinned support at one end and roller support at the other end. Depending on the load applied, it undergoes shearing and bending. It is one of the simplest structural elements in existence. The following image illustrates a simply supported beam.



Static equations are

1. $R_1 + R_2 = W$ where L = span of the beam
2. $R_2 = (W \cdot x) / L$ x = distance of load W from left support

Number of unknowns (a) = 2

Number of static equations (b) = 2

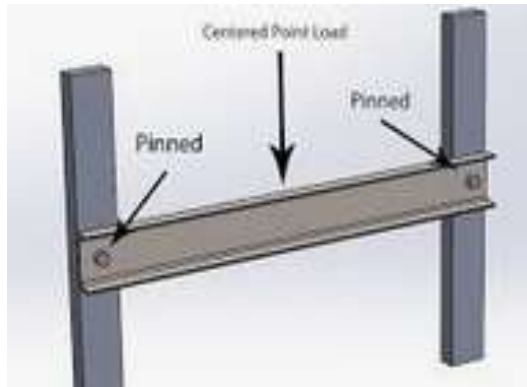
As, $a = b$ the beam is a determinate beam.



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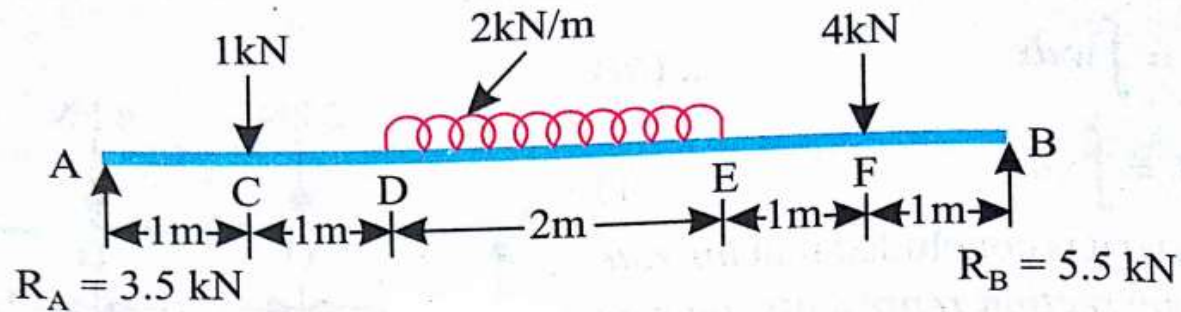
Simply supported beam example





Problem

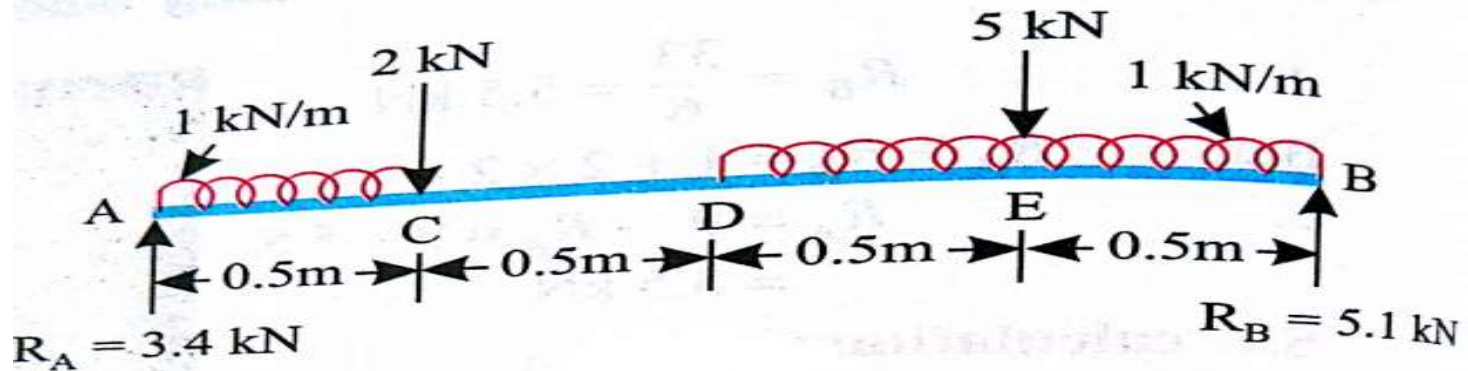
1. Draw the shear force and bending diagrams for the beam shown loaded in Fig. Clearly mark the position of the maximum bending moment and determine its value.





Problem

2. Draw the S.F. and B.M. diagrams for loaded as shown in Fig.





Problem

3. Fig. shows a beam AB of length 4 m acted upon by the forces and moments. Draw the B.M. and S.F. diagrams.

