Problem 1
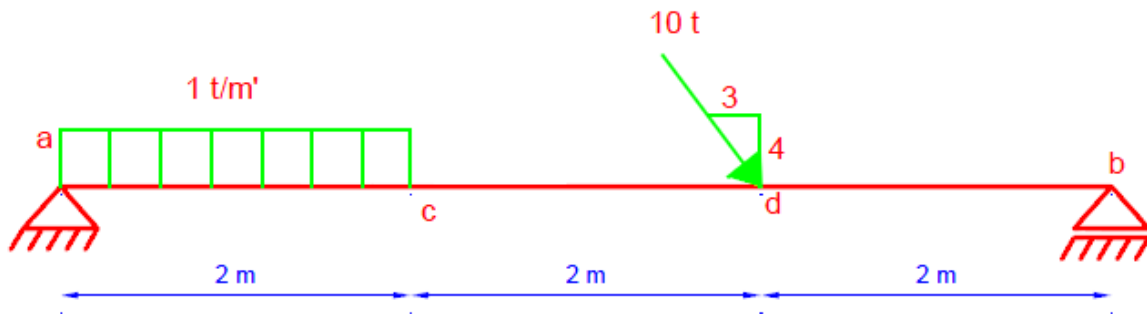
For the following beam Draw N.F.D, S.F.D and B.M.D

SOL.

REACTION.

$\sum Fx = 0$

Xa= 6 t

$\sum Ma = 0$

-Yb × 6 + 8 × 4 + 2 × 1 = 0
Yb = 5.667 t

$\sum Mb = 0$

Ya × 6 – 2 × 5 – 8 × 2 = 0
Ya = 4.333 t

Check

$\sum Fy = 0$

4.333 – 2 – 8 + 5.667 = 0   o.k

1 t/m'

a   c   10 t   d   b

3
4

2 m   2 m   2 m

X a = 6 t

2 t   6 t   8 t

Y a = 4.333   Y b = 5.667

N.F.D.

6 t   6 t

+

S.F.D.

4.333 t   2.333 t   2.333 t

+   +

-

5.667 t   5.667 t

B.M.D

+

1x2x2/8

6.666 mt   +   +

11.334 mt