1-

40 KN/m

6 m

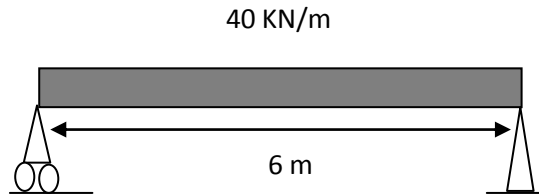**Draw S.F.D & B.M.D**

Reaction :-

$+ \sum M_B = (40 * 6 * 3) - A_y * 6 = 0$

$A_y = 120 \text{ KN}$

$+ \sum M_A = - (40 * 6 * 3) + B_y * 6 = 0$
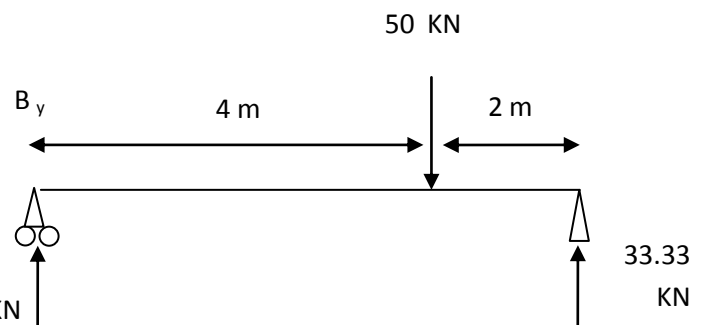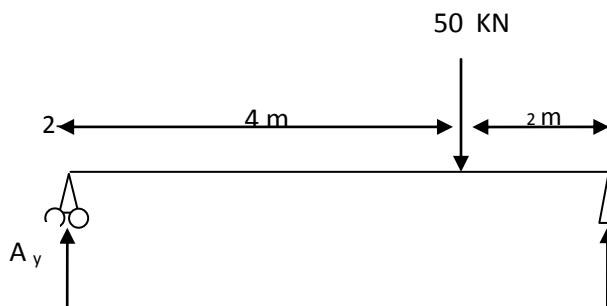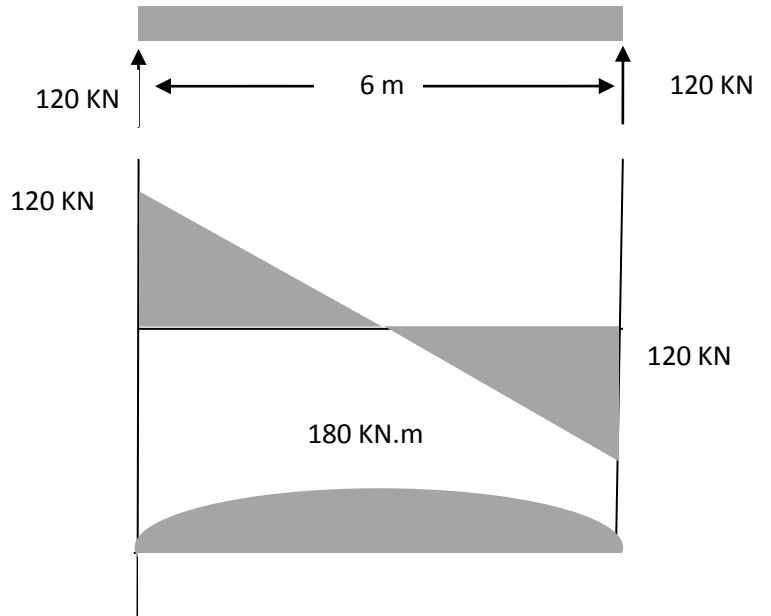
$B_y = 120 \text{ KN}$

Check

$+ \sum F_y = 0$

$A_y + B_y - (40 * 6) = 0$

$120 + 120 - (40 * 6) = 0$

$0 = 0$

120 KN   6 m   120 KN

120 KN

120 KN

180 KN.m

---

50 KN

2   4 m   2 m

A_y B_y

Reaction :-
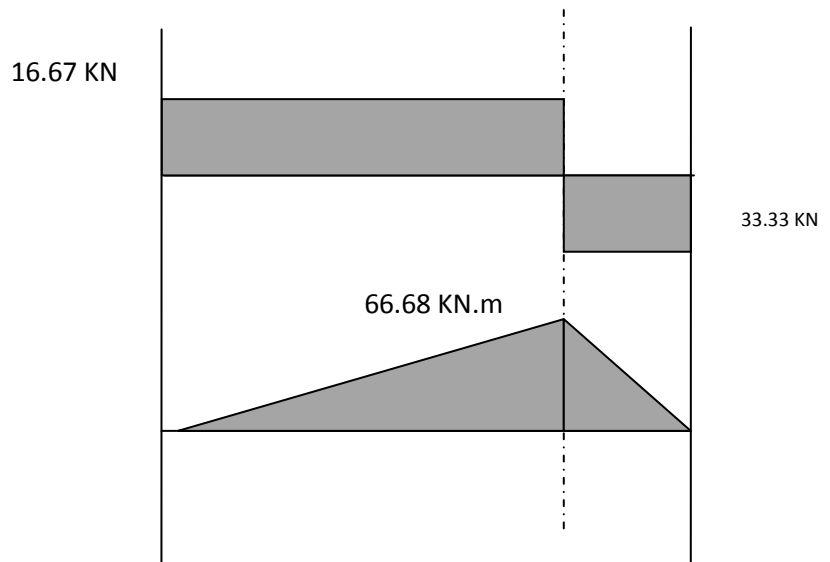
$+ \sum M_B = (50 * 2) - A_y * 6 = 0$

$A_y = 16.67 \text{ KN}$

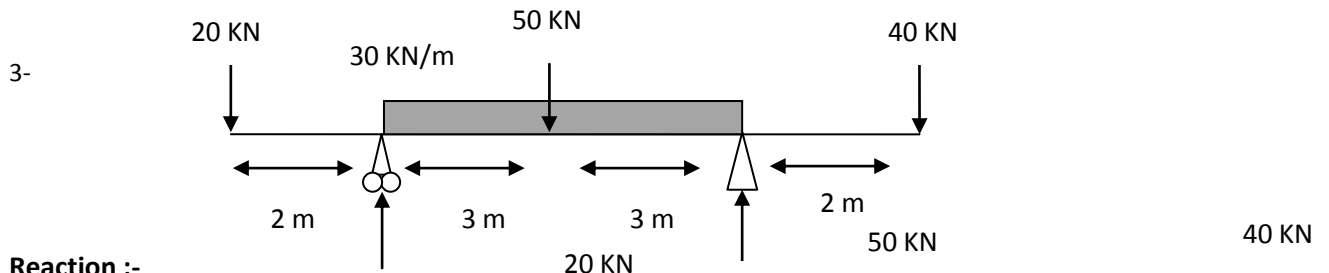$+ \sum M_A = - (50 * 4) + B_y * 6 = 0$

$B_y = 33.33 \text{ KN}$

Check

$+ \sum F_y = 0$

$A_y + B_y - (50) = 0$ $16.67 + 33.33 - 50 = 0$

50 KN

4 m   2 m

B_y

33.33 KN

16.67 KN

16.67 KN

33.33 KN

66.68 KN.m

3-

20 KN   50 KN   40 KN

30 KN/m

2 m   3 m   3 m   2 m

Reaction :-

$+\ \sum M_B = 0$

$-(40*2) + (50*3) + (30*6*3) -$

$-A_y*6 + (20*8) = 128.33\ KN$

$+\ \sum M_A = 0$

$(20*2) - (50+*3) - (30*6*3)$

$-(40*8) + B_y*6 = 0$

$B_y = 161.67\ KN$

Check

$+\ \sum F_y = 0$

$A_y + B_y - 20 - 40 - 50 - (30*6)$

$128.33 + 161.67 - 20 - 40 - 50$

$-(30*6) =$

$0 = 0$

20 KN   50 KN   40 KN

30 KN/m

2 m   3 m   3 m   2 m

128 . 33 KN   161. 67 KN

108. 33 KN

18.33 KN

40 KN

20 KN

-31 .67 KN

121.6 7 KN

150 KN.m

81 Kn.m

40 KN.m

1 KN.m

4-
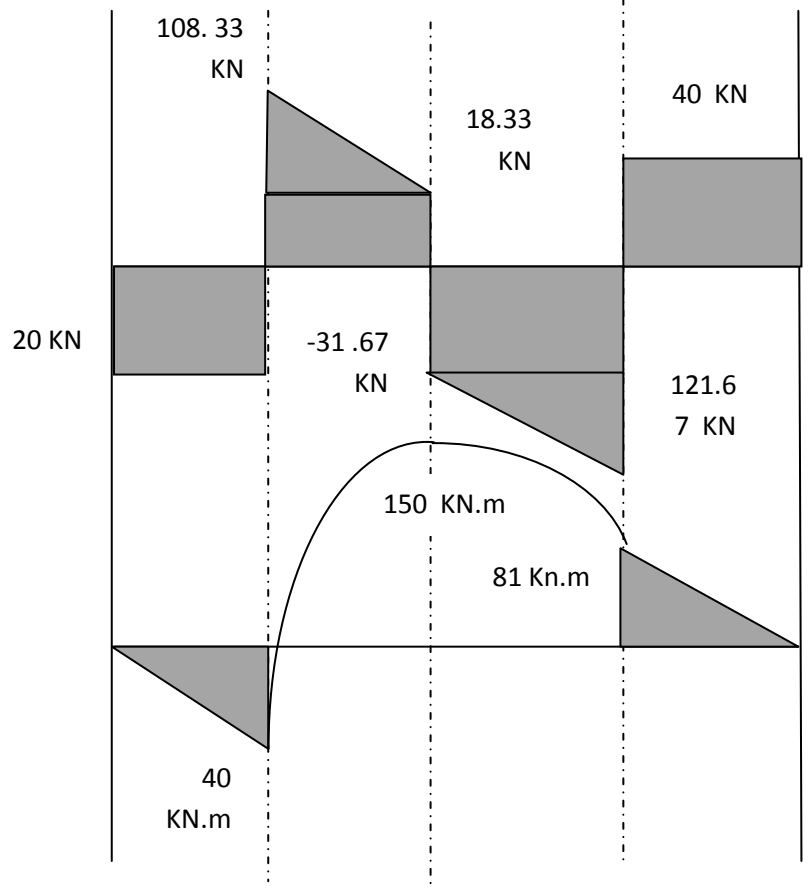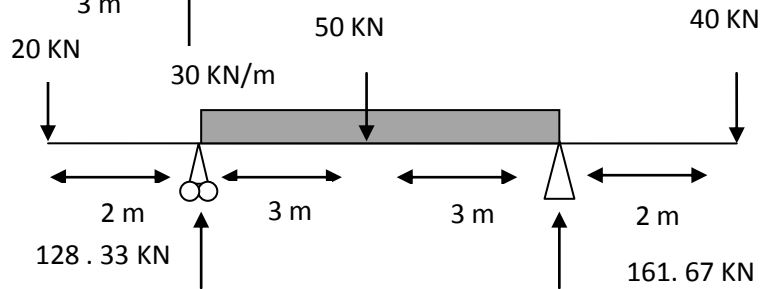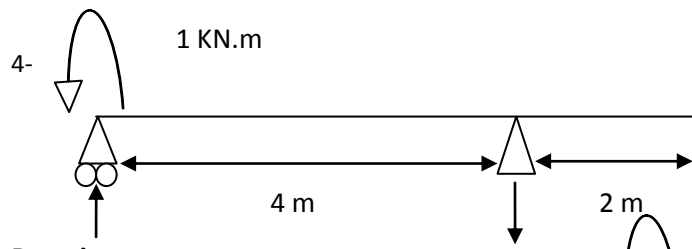
Reaction :-

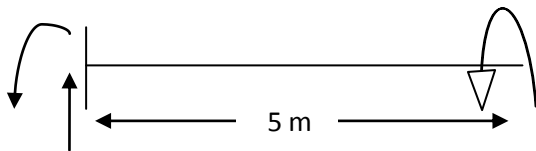$+ \sum M_B = 0$

$(1) - A_y * 4 = 0$

$A_y = 1/4 \ KN$

$+ \sum M_A = 0$
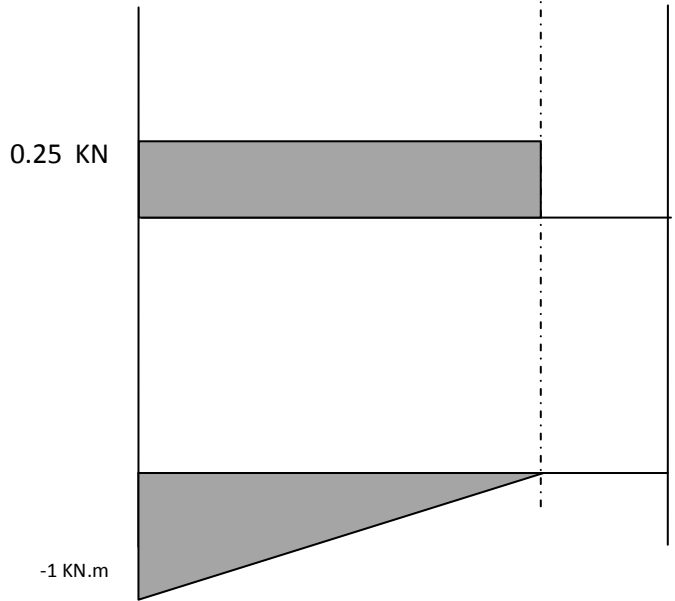
$1 + B_y * 4 = 0$

$B_y = - 1/4 \ KN$

Check

$+ \sum F_y = 0$

$A_y - B_y = 0$

4 m

2 m
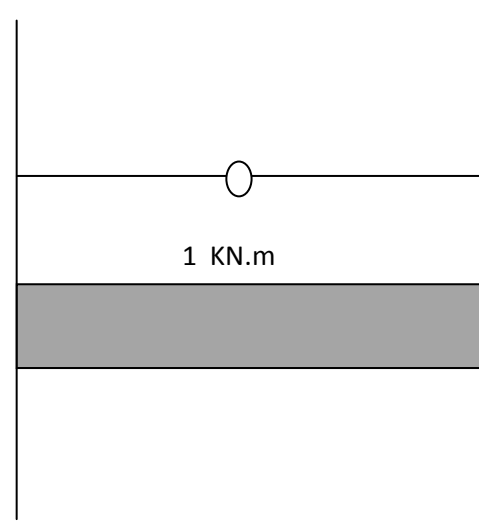
1 KN.m

0.25 KN

4 m

0.25 KN

2 m

0.25 KN

-1 KN.m

---

1 KN.m

5 m
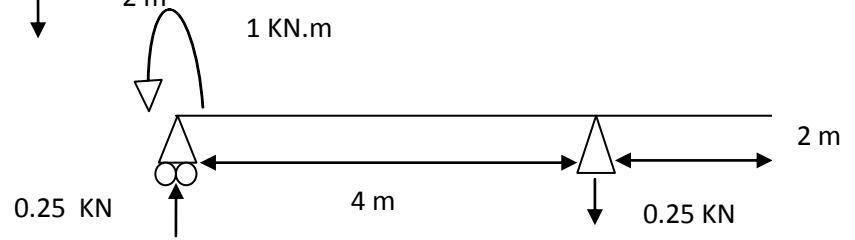
Reaction :-

$+ \sum M_B = M - 1$

$M = 1 \ KN.m$

$+ \sum F_y = 0$

$A_y = 0$

1 KN.m

0 KN

6 m

1 KN.m

40 KN/m

3 m 2 m 5 m

Reaction :-

40 KN/m

A_y B_y
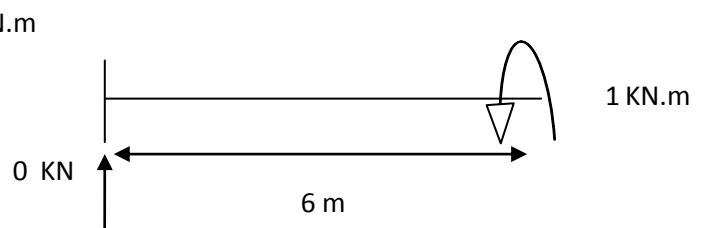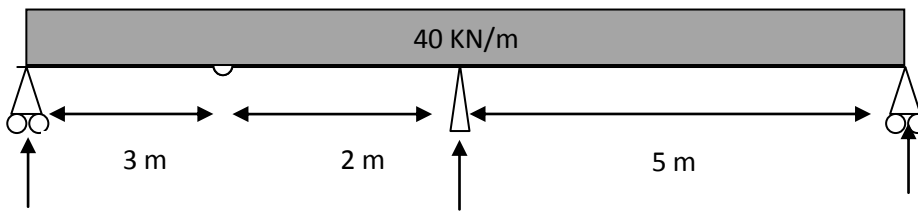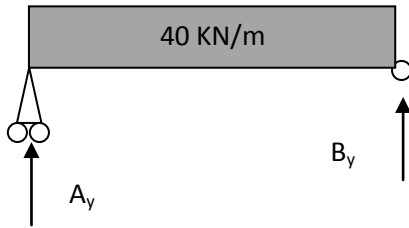
Reaction :-

$+ \sum M_B = 0$

$(40 * 1.5 * 3) - A_y * 3 = 0$

$A_y = 60$ KN

$+ \sum M_A = 0$

$- (40 * 1.5 * 3) + B_y * 6 = 0$

$B_y = 60$ KN

40 KN/m

B_y C_y D_y
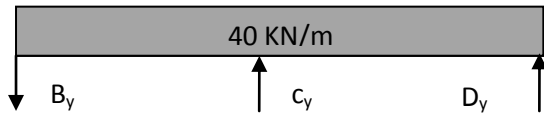
$\sum M_c = 0$

$(60 * 2) + (40 *2*1) + (D_y*5)-(40*5*2.5)=0$

$D_y = 60$ KN

$\sum M_D = 0$

$(60 * 7) + (40 *7*3.5) + (c_y*5)0$

$C_y = 280$ KN

$+ \sum F_y = 0$

$60 + 60 + 280 - (40 * 10) =$

$0 = 0$

40 KN/m

60 KN   3 m   2 m   280 KN   5 m   60 KN

60 KN   140KN

140 KN   60 KN

90 KN.m   90 KN.m

50 KN.m