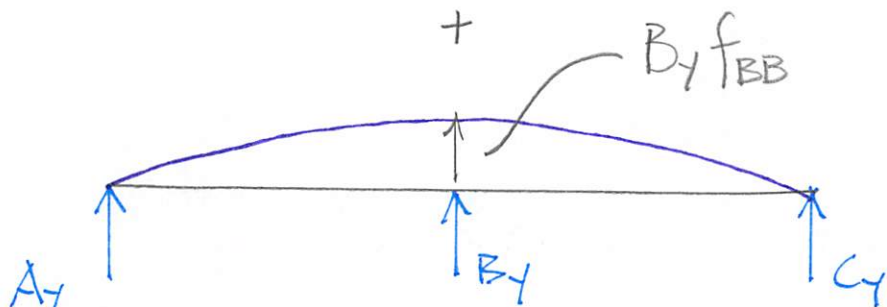
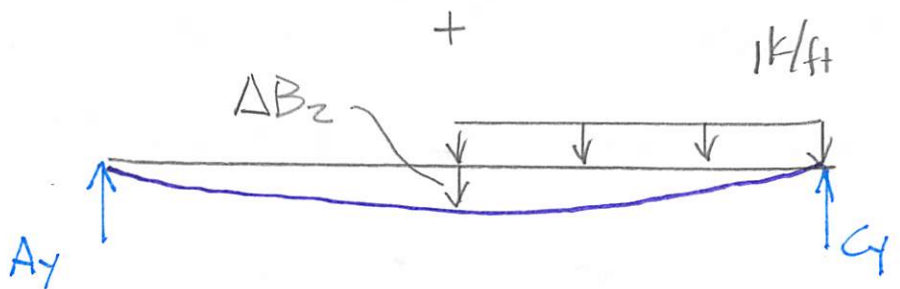
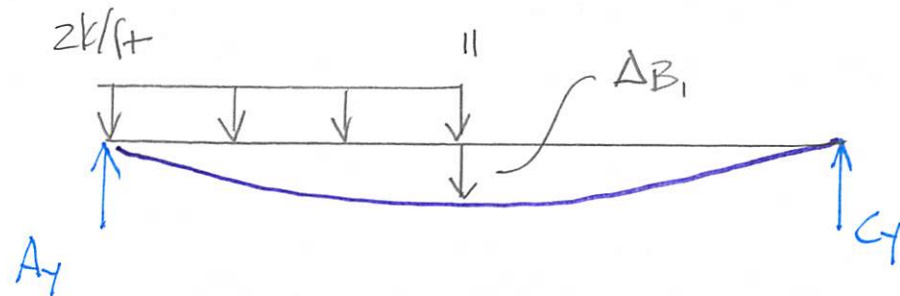
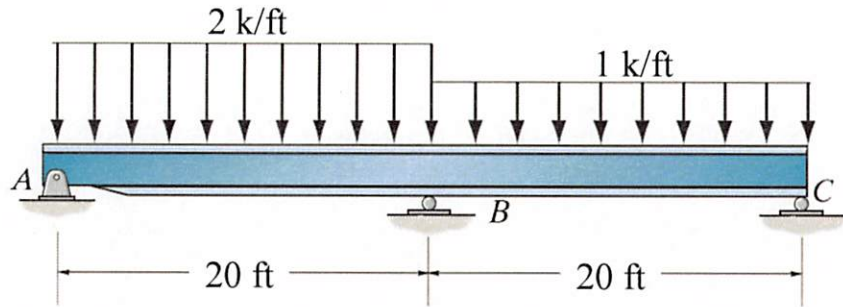
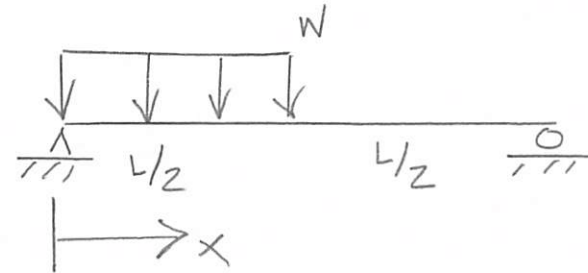


Problem 9a-3 – Compute the reactions and draw the shear and moment curves for the following beam.

1/2



$$\Delta_B = 0 = \Delta_{B_1} + \Delta_{B_2} + B_y f_{BB}$$



$$\Delta_B = \frac{Wx}{384EI} [16x^3 - 24Lx^2 + 9L^3]$$

$$= \frac{(-2k/ft)(20ft)}{384EI} [16(20ft)^3 - 24(40ft)(20ft)^2 + 9(40ft)^3]$$

$$= -\frac{100,000kft^3}{3EI}$$

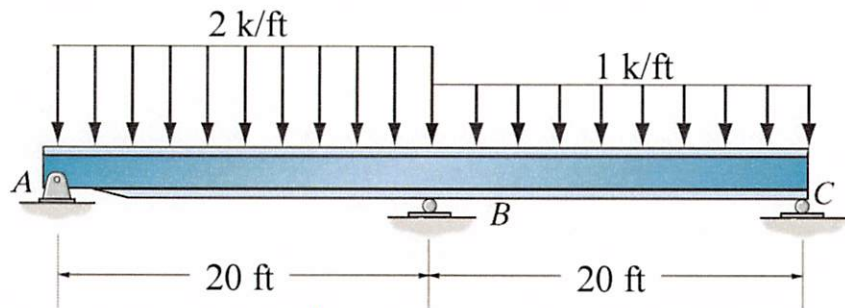
$$\Delta_{B_2} = \Delta_{B_1} / 2$$

$$f_{BB} = \frac{L^3}{48EI}$$

$$= \frac{(40ft)^3}{48EI}$$

$$\underline{\underline{B_y = 37.5k}}$$

Problem 9a-3 – Compute the reactions and draw the shear and moment curves for the following beam.



$$\sum M_C = 0 = 20^k(10') + 40^k(30') - 37.5^k(20') - A_y(40')$$

$$\underline{A_y = 16.25^k}$$

$$\sum F_y = 0 = A_y + C_y + 37.5^k - 40^k - 20^k$$

$$\underline{C_y = 6.25^k}$$

$$x_1 = \frac{16.25^k}{2^k/ft} = 8.125 ft$$

$$x_2 = \frac{13.75^k}{1^k/ft} = 13.75 ft$$

