



I = Same throughout beam

$M_1 = M_3 = 0$ Simply supported

By Using three moment equation for dist. loads

$$I \text{ got } \frac{-6X_L A_L}{L_L E I_L} - \frac{6X_R A_R}{L_R E I_R} = \frac{-W_L L_L^3}{4 E I_L} - \frac{W_R L_R^3}{4 E I_R}$$

$$I_L = I_R \therefore$$

$$= \frac{-W_L L_L^3}{4} - \frac{W_R L_R^3}{4}$$

$$= \left[\frac{(462 \text{ #/ft})(11 \text{ ft})^3}{4} + \frac{(500 \text{ #/ft})(7.5 \text{ ft})^3}{4} \right] - \left[\frac{(962 \text{ #/ft})(9 \text{ ft})^3}{4} \right]$$

$$= -206464.88 \text{ #ft}^2 - 175,324.5 \text{ #ft}^2$$

$$= -381,789.38 \text{ #ft}^2$$

$$\rightarrow 2 M_2 (L_1 + L_2) = -381,789.38 \text{ #ft}^2$$

$$2 (M_2) (13' + 14.33') = -381,789.38 \text{ #ft}^2$$

$$M_2 = -6904.80 \text{ #ft}$$

Compared to $-13,334 \text{ #ft}$