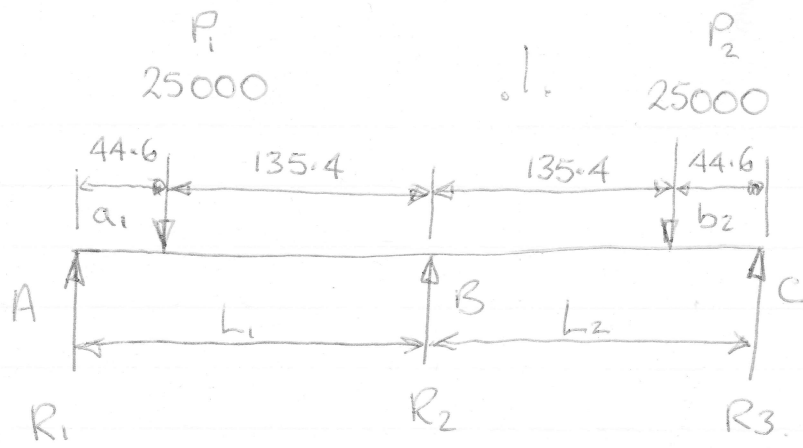




$$L_1 = L_2 = 180$$

$$P_1 = P_2 = 25000$$

$$a_1 = b_2 = 44.6$$

THREE MOMENT EQUATION

$$M_A L_1 + 2M_B (L_1 + L_2) + M_C L_2 = - \left\{ \frac{P_1 a_1}{L_1} (L_1^2 - a_1^2) \right\} - \left\{ \frac{P_2 b_2}{L_2} (L_2^2 - b_2^2) \right\}$$

Now M_A & $M_C = 0$ For Simple Support, Also $P_1 = P_2$
 $a_1 = b_2$ & $L_1 = L_2$ ∴

$$2M_B (L_1 + L_2) = - 2 \left\{ \frac{P_1 a_1}{L_1} (L_1^2 - a_1^2) \right\}$$

$$2M_B (180 + 180) = - 2 \times \left\{ \frac{25000 \times 44.6}{180} \times (180^2 - 44.6^2) \right\}$$

$$2M_B (180 + 180) = - 376756517.8$$

$$M_B = \underline{\underline{-523272.9414}}$$

.2.

To FIND R_1 (TAKE MOMENTS AT B)

$$\therefore R_1 L_1 - 25000(180 - 44.6) = -523272.9414$$

$$R_1 L_1 = 2861727.059$$

$$R_1 = \frac{2861727.059}{180} = \underline{\underline{15898.48366\text{N}}}$$

To FIND R_2 (TAKE MOMENTS ABOUT C)

$$0 = R_1(180 + 180) - 25000(180 + 180 - 44.6) + R_2(180) - 25000(44.6)$$

$$\therefore R_2(180) = 3276546.12$$

$$R_2 = \frac{3276546.12}{180} = \underline{\underline{18,203.034\text{N}}}$$

$$\underline{\underline{R_1 = R_3 = 15898.48366\text{N}}}$$

* ADD UP VERTICAL REACTIONS & THEY SHOULD CANCEL
TOTAL VERTICAL LOAD DOWN IS 2×25000 ,
ADD THE VERTICAL FORCES ON THE ON LINE CALCULATOR
AND THEY DO NOT CANCEL THE $2 \times 25000\text{lb}$