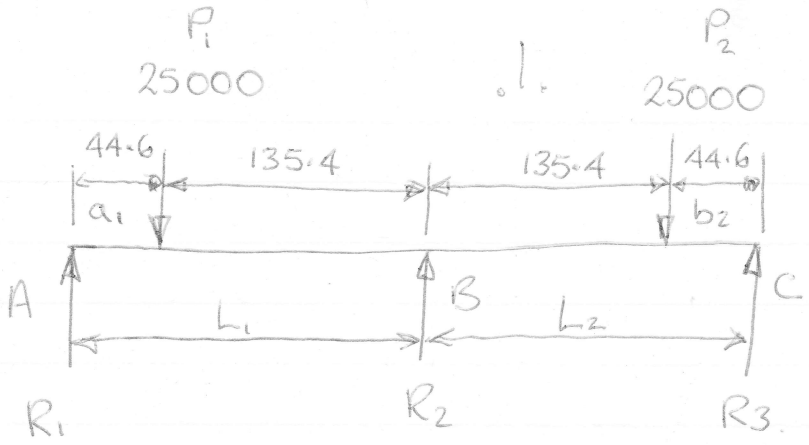

$L_1 = L_2 = 180$

$P_1 = P_2 = 25000$

$a_1 = b_2 = 44.6$

THREE MOMENT EQUATION

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

NOW M_A & $M_C = 0$ FOR SIMPLE SUPPORT, ALSO $P_1 = P_2$
$a_1 = b_2$ & $L_1 = L_2$ ∴

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

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

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

$$M_B = -523272.9414$$

To Find R_1 (take Moments At B)

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

$$R_1 L_1 = 2861727.059$$

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

To Find R_2 (take Moments About C)

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

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

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

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

* ADD UP VERTICAL REACTIONS & THEY SHOULD CANCEL TOTAL VERTICAL LOAD DOWN IE 2× 25000. ADD THE VERTICAL FORCES ON THE ON LINE CALCULATOR AND THEY DO NOT CANCEL THE 2× 25000lb