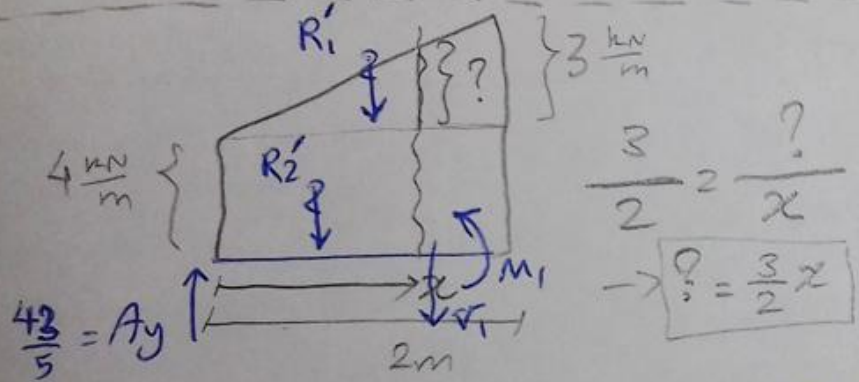


$$+\circlearrowleft \sum M_A = 0 \rightarrow B_y(5) - 3\left(2 \times \frac{2}{3}\right) - 8\left(\frac{2}{2}\right) = 0$$

$$\rightarrow 5B_y - 4 - 8 = 0 \rightarrow \boxed{B_y = \frac{12}{5}} = 2.4 \text{ (kN)}$$

$$+\uparrow \sum F_y = 0 \rightarrow A_y - 3 - 8 + \frac{12}{5} = 0 \rightarrow \boxed{A_y = \frac{43}{5}} \text{ (kN)}$$



$$R_1' = \left(\frac{3}{2}x \times x\right) \times \frac{1}{2} = \frac{3x^2}{4}$$

$$R_2' = 4 \times x = 4x$$

$$+\uparrow \sum F_y = 0 \rightarrow A_y - R_1' - R_2' - V_1 = 0 \rightarrow \boxed{V_1 = \frac{43}{5} - \frac{3x^2}{4} - 4x}$$

$$+\circlearrowleft \sum M = 0 \rightarrow -A_y(x) + R_1'\left(\frac{x}{3}\right) + R_2'\left(\frac{x}{2}\right) + M_1 = 0$$

$$\rightarrow M_1 = \frac{43x}{5} - \frac{3x^2}{4} \times \frac{x}{3} - 4x \times \frac{x}{2} \rightarrow \boxed{M_1 = \frac{43x}{5} - \frac{x^3}{4} - 2x^2}$$

SEC 1:  $0 < x < 2m$

$x$	0	2
$V_1$	$\frac{43}{5}$	$-\frac{12}{5}$

$x$	0	2
$M_1$	0	$\frac{36}{5}$

$$\text{SEC 2: } \uparrow \sum F_{y20} \rightarrow Ay - R_1 - R_2 - V_2 = 0 \rightarrow \boxed{V_2 = \frac{43}{5} - 3 - 8 = -\frac{12}{5}}$$

$$\uparrow \sum M_{20} \rightarrow -Ay(x) + R_1(x - \frac{2}{3}x^2) + R_2(x - \frac{2}{2}) + M_2 = 0$$

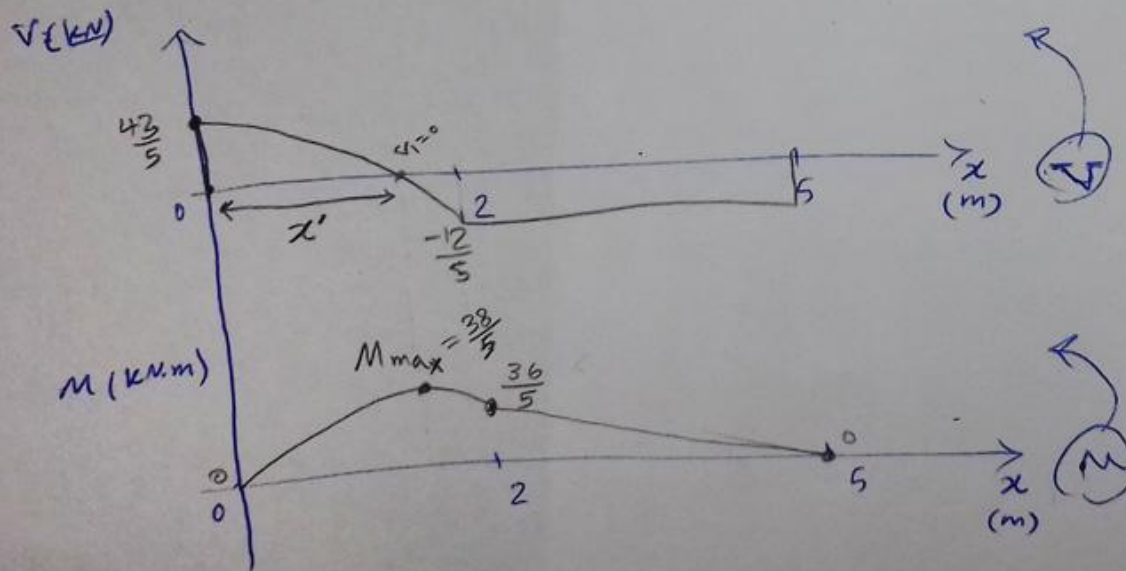
$$\rightarrow -\frac{43}{5}(x) + 3(x - \frac{4}{3}) + 8(x - 1) + M_2 = 0$$

$$\rightarrow M_2 = \frac{43x}{5} - 3x + 4 - 8x + 8 \rightarrow \boxed{M_2 = -\frac{72}{5}x + 12}$$

SEC 2:  $2 < x < 5 \text{ m}$

$x$	2	5
$V_2$	$-\frac{12}{5}$	$-\frac{12}{5}$

$x$	2	5
$M_2$	$\frac{36}{5}$	0



$$x' = ? \rightarrow V_1 = 0$$

$$\rightarrow -\frac{3x^2}{4} - 4x + \frac{43}{5} = 0$$

$$\rightarrow \begin{cases} x' = -6.97 \text{ m} \times \\ x' = 1.644 \text{ m} \checkmark \text{ OK} \end{cases}$$

$$\rightarrow x' = 1.644 \text{ m} \rightarrow M_{\max} = ?$$

$$M_{\max} = M_1(x' = 1.644) =$$

$$-\frac{(1.644)^3}{4} + \frac{43}{5}(1.644) - 2(1.644)^2$$

$$\rightarrow \boxed{M_{\max} = 7.622 \text{ kNm}} \approx \frac{38}{5}$$