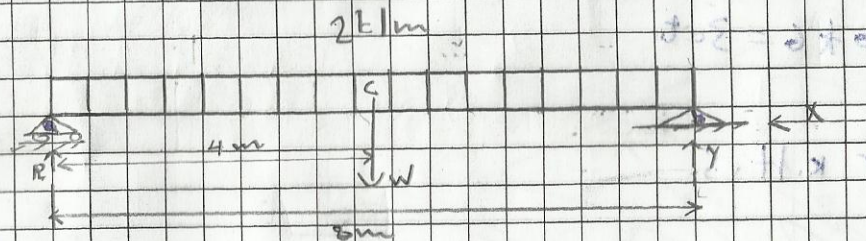


I



$$W = 2 \times 8 = 16$$

$$\sum x = 0$$

$$\rightarrow \boxed{x = 0}$$

$$\sum m)_A = 0$$

$$-16 \times 4 + Y \times 8 = 0$$

$$\therefore \boxed{Y = 8E}$$

$$\sum y = 0$$

$$R + 8 - 16 = 0$$

$$\therefore \boxed{R = 8E}$$

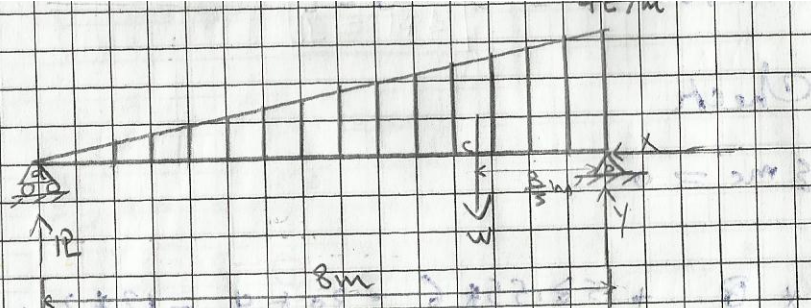
Check

$$\sum m)_C = 0$$

$$-8 \times 4 + 8 \times 4 = \text{Zero}$$

OK





$$W = \frac{1}{2} \times 8 \times 4 = 16 \text{ k}$$

$$\sum X = 0$$

$$\Rightarrow \boxed{X = 0}$$

$$\sum M_A = 0$$

$$16 \times \frac{8}{3} - R \times 8 = 0$$

$$\Rightarrow \boxed{R = \frac{16}{3} \text{ k}}$$

$$\sum Y = 0$$

$$\frac{16}{3} - 16 + Y = 0$$

$$\Rightarrow \boxed{Y = \frac{32}{3} \text{ k}}$$

Check

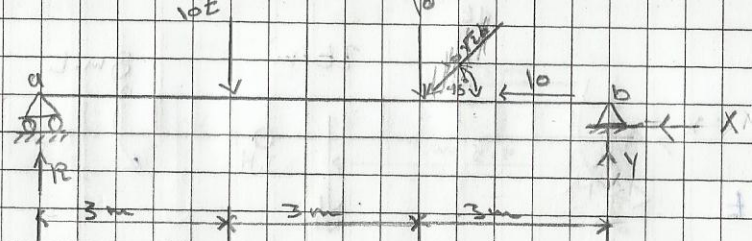
$$\sum M_C = 0$$

$$\frac{32}{3} \times \frac{8}{3} - \frac{16}{3} \times \frac{16}{3} = \text{zero}$$

OK



3



$$10\sqrt{2} \sin 45 = 10\sqrt{2} \cos 45 = 10k$$

$$\sum X = 0$$

$$\therefore \boxed{X = -10k}$$

check

$$\sum m)_b = 0$$

$$10 \times 3 + 10 \times 6 - 10 \times 9 = \text{zero}$$

$$\sum m)_a = 0$$

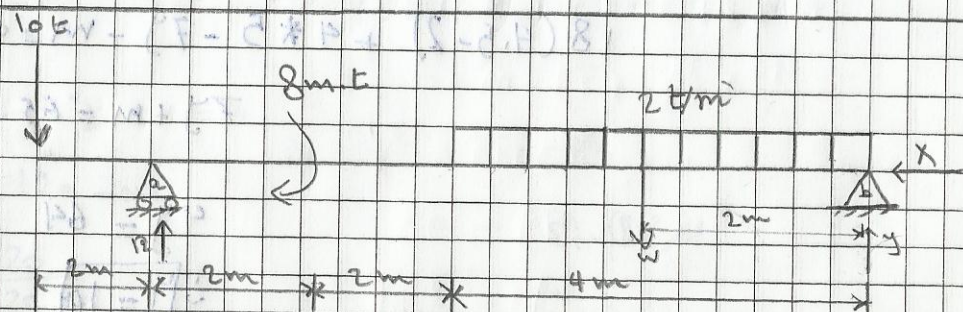
$$-10 \times 3 - 10 \times 6 + Y \times 9 = 0 \quad \therefore \boxed{Y = 10k}$$

OK

$$\sum Y = 0$$

$$R - 10 - 10 + 10 = 0 \quad \therefore \boxed{R = 10k}$$

4



$$w = 2 \times 9 = 18k$$

$$\sum X = 0$$

$$\therefore \boxed{X = 0}$$

check

$$\sum m)_b = 0$$

$$10 \times 2 - 8 - R \times 8 + 10 \times 10 = 0$$

$$\therefore \boxed{R = \frac{27}{2}k}$$

$$\sum m)_a = 0$$

$$10 \times 2 - 8 - 8 \times 6 + \frac{2}{2} \times 16 = 0$$

$$10 \times 2 - 8 - 8 \times 6 + \frac{2}{2} \times 8 = 0$$

OK

$$\sum Y = 0$$

$$-10 + 2Y - 8 + Y = 0$$

$$\therefore \boxed{Y = \frac{2}{2}k}$$



[5]

~~W<sub>1</sub> = 4 \* 11~~

$$W_1 = 4 * 11 = 44 \text{ E}$$

$$W_2 = \frac{1}{2} * (10 - 4) * 6 = 18 \text{ E}$$

$$\sum m)_b = 0$$

$$-20 * 2 + 18 * 2 + 44 * 5.5 + 10 * 9 - R \cos 30 * 11 = 0$$

$$R \cos 30 = \frac{328}{11}$$

$$\therefore R = 34.43 \text{ E}$$

$$\sum y = 0$$

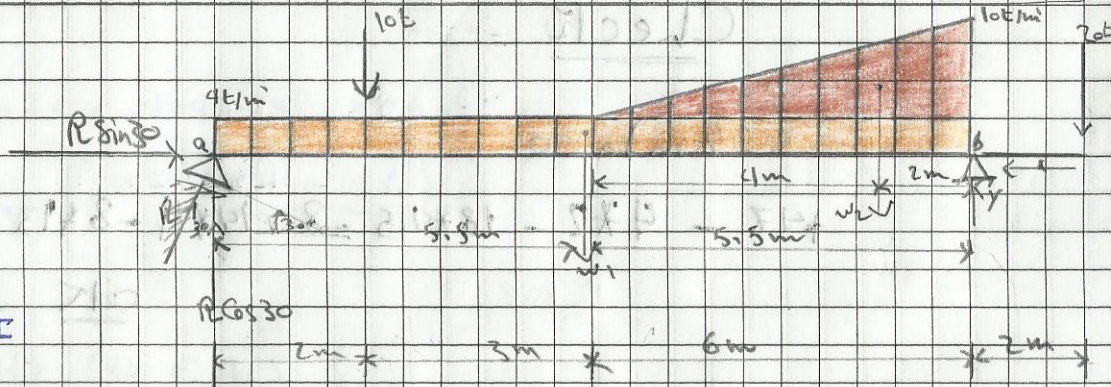
$$\frac{328}{11} - 10 - 44 - 18 + y - 20 = 0$$

$$\therefore y = 62.18 \text{ E}$$

$$\sum x = 0$$

$$x = R \sin 30 = 34.43 * \frac{1}{2} = 17.215$$

$$\therefore x = 17.215$$



check

$$\sum m)_a = 0$$

$$+10 * 2 - 44 * 5.5 - 18 * 9 + 62.18 * 11 - 20 * 13 = 0.02 \approx 0$$

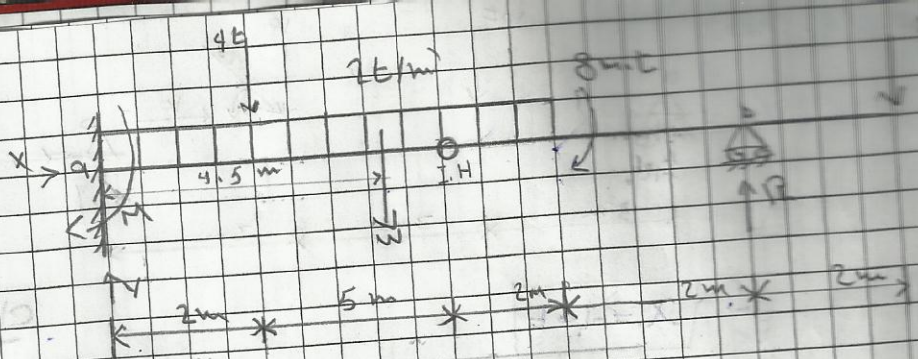
(المعادلة المتبقية)

OK



6

$$w = 2 \times 9 = 18 \text{ k}$$



$$\sum x = 0$$

$$\therefore x = 0$$

$$\sum m)_b = 0$$

$$+ 4 \times 9 - 8 \times 2 - 8 + 18 \times 6.5 - y \times 11 - m = 0$$

$$11y + m = 93 \quad \text{--- (1)}$$

$$\therefore 11y + m = 129 \quad \text{--- (2)}$$

$$\sum m)_{IH} \text{ Per L.H.S}$$

$$18(4.5 - 2) + 4 \times 5 - 7y - m = 0$$

$$7y + m = 65 \quad \text{--- (3)}$$

$$4y = 64$$

$$\therefore y = 16 \text{ k}$$

① و ②

عوض في

$$11 \times 16 + m = 129$$

$$\therefore m = -47 \text{ m.k}$$

$$\sum y = 0$$

$$16 - 4 - 18 + R - 8 = 0$$

$$\therefore R = 14 \text{ k}$$

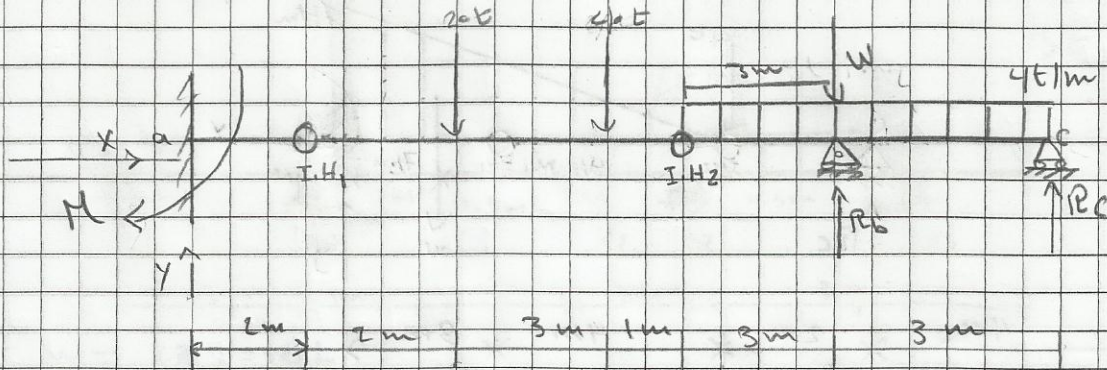
Check

$$\sum m)_a = 0$$

$$+ 47 - 4 \times 2 - 18 \times 4.5 - 8 + 14 \times 11 - 8 \times 13 = 0$$

OK





$$W = 4 \times 6 = 24 \text{ t}$$

$$\sum x = 0$$

$$\sum x = 0$$

$$\sum m) \text{ I.H}_1 \text{ for L.H.S}$$

$$2y - m = 0$$

$$2y + m = 0 \rightarrow \textcircled{1}$$

$$\sum m) \text{ I.H}_2 \text{ for L.H.S}$$

$$40 \times 1 + 20 \times 4 - 8y - m = 0$$

$$8y + m = 120 \rightarrow \textcircled{2}$$

$$6y = 120$$

$$y = 20 \text{ t}$$

$$40 + m = 0$$

$$m = -40 \text{ m.t}$$

$$\sum m) C = 0$$

$$24 \times 3 - R_b \times 3 + 40 \times 7 + 20 \times 10 - 20 \times 14 - (-40) = 0$$

$$R_b = 104 \text{ t}$$

$$\sum y = 0$$

$$20 - 20 - 40 + 104 - 24 + R_c = 0$$

$$R_c = -40 \text{ t}$$

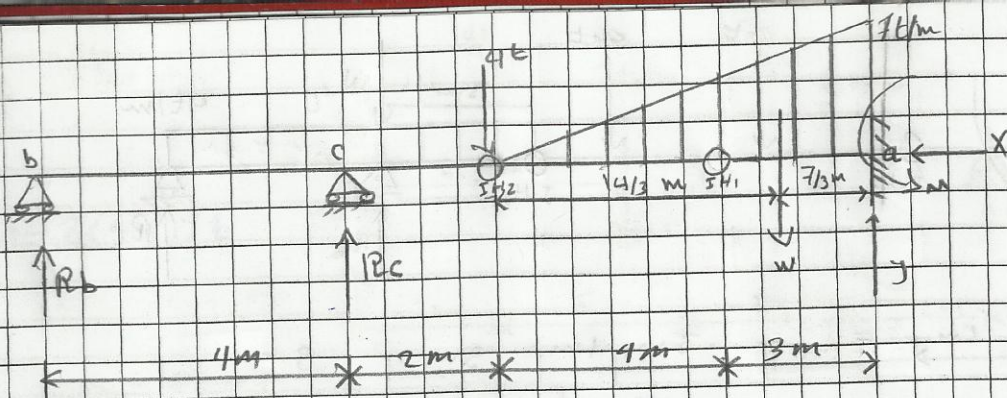
Check

$$\sum m) \text{ I.H}_2 \text{ for r.H.S}$$

$$104 \times 3 - 24 \times 3 - 40 \times 6 = 0$$

OK





$$w = \frac{1}{2} \times 7 \times 7 = \frac{49}{2} \text{ k}$$

$$\sum X = 0 \Rightarrow X = 0$$

$\sum M \uparrow$  I.H.1 For R.H.S

$$-\frac{49}{2} \left( 3 - \frac{3}{2} \right) + 3y + m = 0$$

$$3y + m = \frac{49}{2} \rightarrow \textcircled{1}$$

$\sum M \uparrow$  I.H.2 For R.H.S

$$-\frac{49}{2} \times \frac{14}{3} + 7y + m = 0$$

$$7y + m = \frac{343}{3} \rightarrow \textcircled{2}$$

$$4y = 98$$

$$\therefore y = \frac{98}{4} \text{ k}$$

$$3 \times \frac{98}{2} + m = 0$$

$$\therefore m = -\frac{343}{6} \text{ m.k}$$

① is correct

$\sum M \uparrow$  b = 0

$$4R_c - 4 \times 6 - \frac{49}{2} \times \left( \frac{14}{3} + 6 \right) + \frac{49}{2} \times 13 - \frac{343}{6} = 0$$

$$\therefore R_c = 6 \text{ k}$$

$\sum Y = 0$

$$\frac{49}{2} - \frac{49}{2} - 4 + 6 + R_b = 0$$

$$\therefore R_b = -2 \text{ k}$$

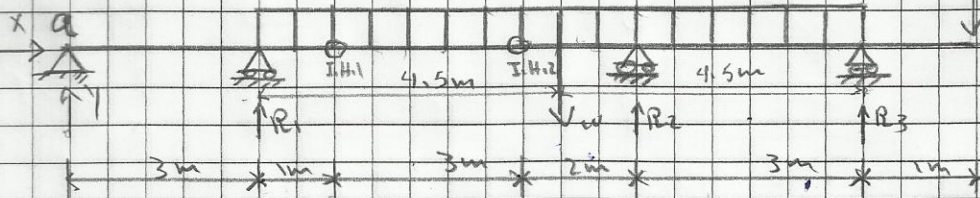
check

$\sum M \uparrow$  I.H.2 for L.H.S

$$6 \times 2 - 2 \times 6 = 0$$

OK





$$W = 2 \times 9 = 18t$$

$$\sum X = 0 \quad \boxed{\sum X = 0}$$

$\sum m) I.H.1$  For L.H.S

$$-R_1 \times 4 = 0$$

$$R_1 \times 4 = 0 \rightarrow \textcircled{1}$$

$\sum m) I.H.2$  For

$\sum m) I.H.2$  For R.H.S

$$-18 \times 0.5 + R_2 \times 2 + R_3 \times 5 - 3 \times 6 = 0$$

$$2R_2 + 5R_3 = 27 \rightarrow \textcircled{1}$$

$\sum m) I.H.1$  For R.H.S

$$-18 \times 3.5 + R_2 \times 5 + 8R_3 - 3 \times 9 = 0$$

$$5R_2 + 8R_3 = 90 \rightarrow \textcircled{2}$$

by solving The eqns

$$\text{we found : } \boxed{R_2 = 26t}$$

$$\boxed{R_3 = -5t}$$

$$\sum m) a = 0$$

$$R_1 \times 3 = 18 \times 7.5 + 26 \times 9 - 5 \times 12 - 3 \times 13 = 0$$

$$\therefore \boxed{R_1 = 0}$$

$$\sum Y = 0$$

$$Y + 0 + 26 - 5 - 18 - 3 = 0$$

$$\boxed{Y = 0}$$

check

$\sum m) I.H.1$  For L.H.S

$$-0 \times 1 = 0 \times 3 = 0$$

OK

بدون خطأ