



مدرس خصوصى



اونلاين

يحصل الطالب على ...

* مقاطع فيديو هات لشرح المقرر بشكل وافي

* ملخص للمادة للمراجعة النهائية

* محاضرات مباشرة على برنامج Zoom

* تواصل مستمر مع معلم المادة للمناقشة

للتواصل



00201024041097

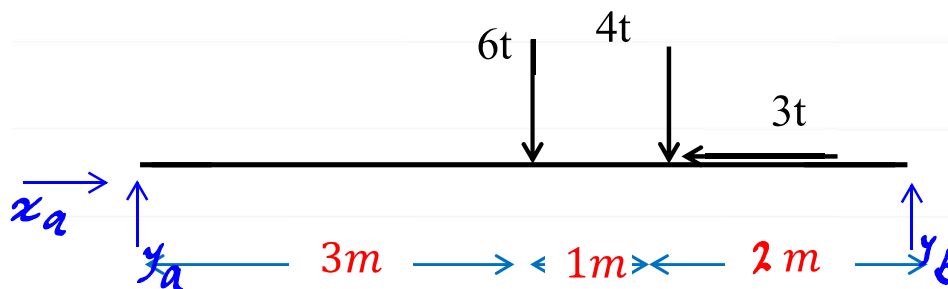
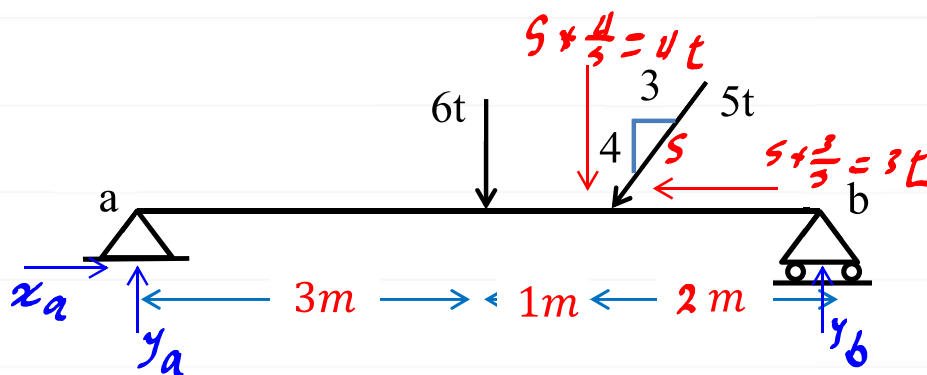


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Example 2.1

Find the reactions for beam ab loaded as shown in Fig. 2.2



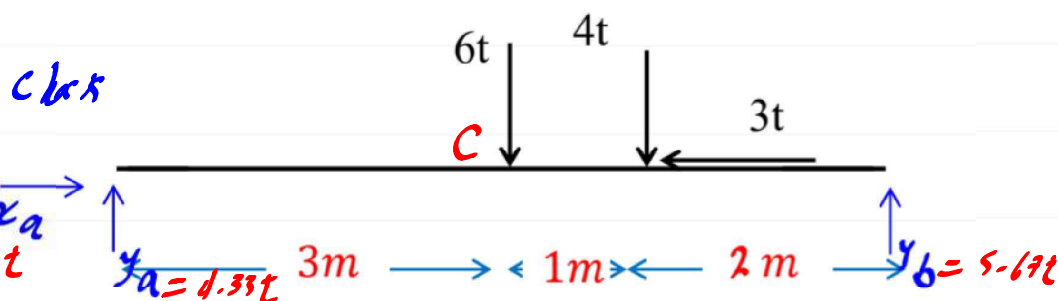
$$\sum F_x = x_a - 3 = 0 \Rightarrow x_a = 3t \rightarrow$$

$$\sum M_a = -6 \times 3 - 4 \times 4 + y_b \times 6 = 0$$

$$y_b = 5.67t \uparrow$$

$$\sum F_y = y_a - 6 - 4 + 5.67 = 0$$

$$y_a = 4.33t \uparrow$$



$$\sum F_x = 0 \checkmark$$

$$3 - 3 = 0$$

$$\sum F_y = 0$$

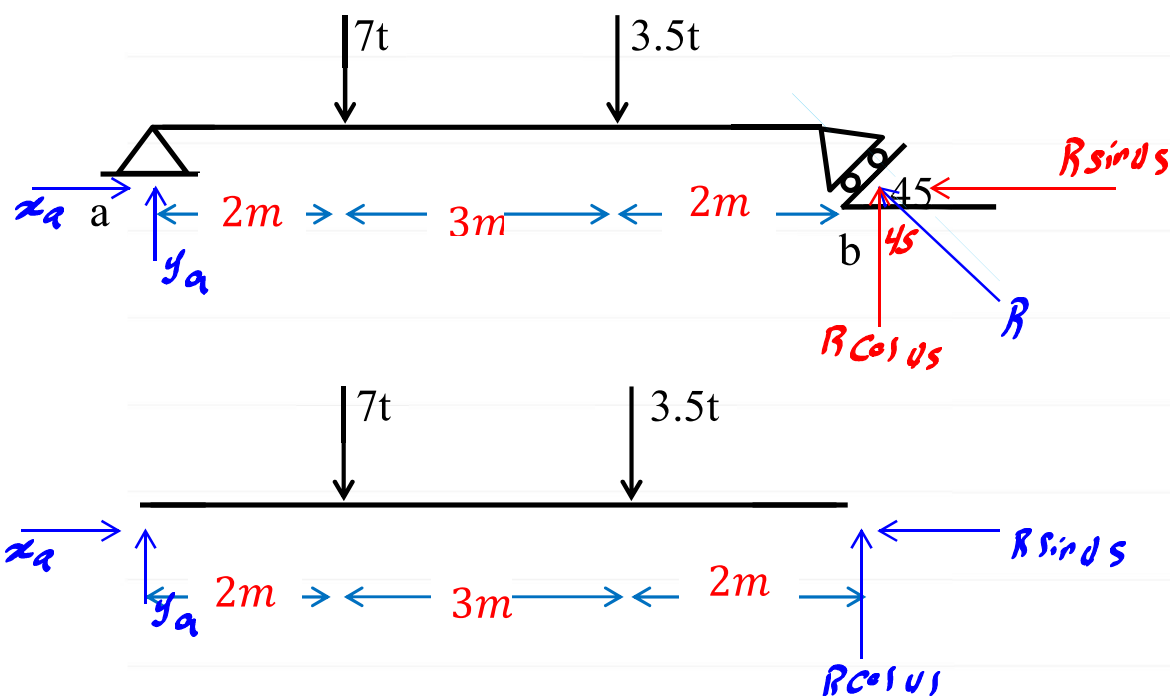
$$4.33 - 6 - 4 + 5.67 = 0$$

$$\sum M = 0$$

$$-4.33 \times 3 - 4 \times 1 + 5.67 \times 6 = 0$$

Example 2.2

Find the reactions for beam ab loaded as shown in Fig. 2.3.



$$\sum M_a = -7 \times 2 - 3.5 \times 5 + R \cos 45 \times 7 = 0$$

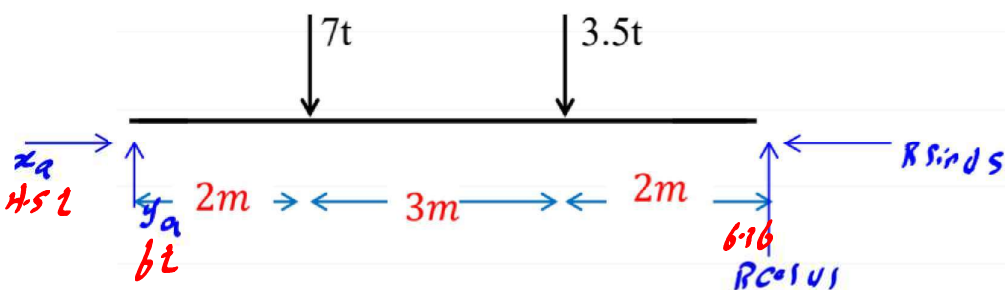
$$R = 6.36 \text{ t}$$

$$\sum F_x = x_a - R \sin 45 = 0$$

$$x_a = 4.5 \text{ t} \rightarrow$$

$$\sum F_y = y_a - 7 - 3.5 + 6.36 \cos 45 = 0$$

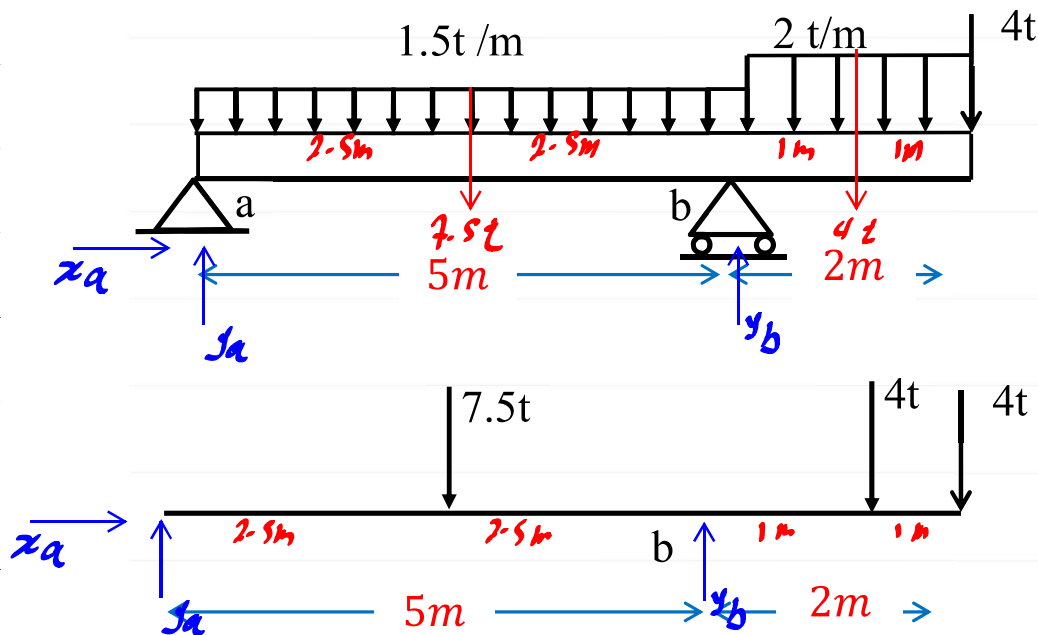
$$y_a = 6 \text{ t} \uparrow$$



$$\sum F_x = 0 \quad | \quad \sum F_y = 6 - 7 - 1.5 + 4.56 \cos 45 \quad | \quad \sum M_b \approx 0$$

Example 2.3

Find the reactions for beam ab loaded as shown in Fig. 2.4.



$$\sum f_x = x_a = 0$$

$$\sum M_a = -7.5 \times 2.5 + y_b \times 5 - 4 \times 6 - 4 \times 7 = 0$$

$$y_b = 14.15 \text{ t} \uparrow$$

$$\sum f_y = y_a - 7.5 - 4 - 4 + 14.15 = 0$$

$$y_a = 1.35 \text{ t} \uparrow$$

check

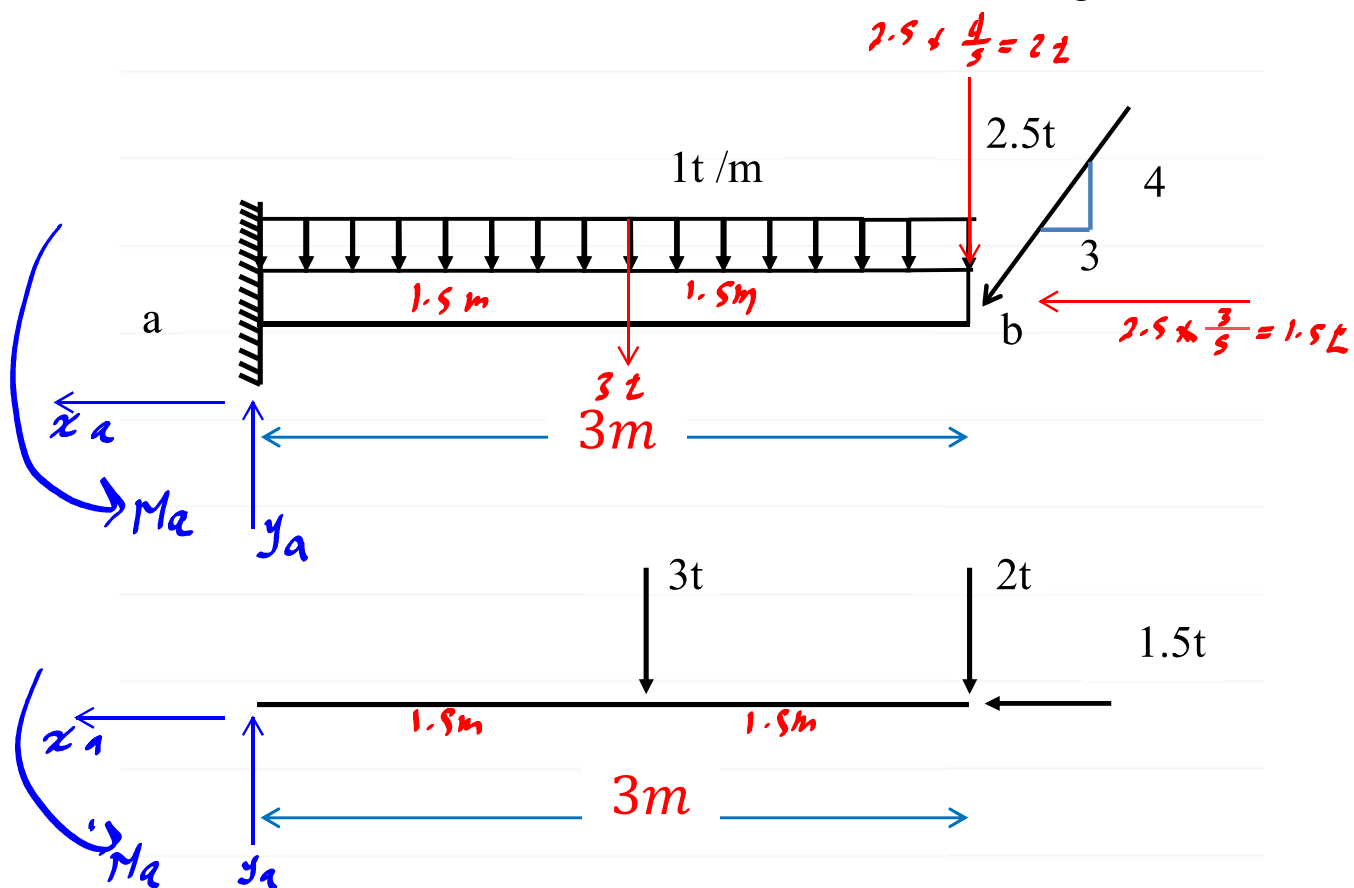
$$\sum f_x = 0$$

$$\sum f_y = 0$$

$$\sum M = 0$$

Example 2.4

Find the reactions for beam ab loaded as shown in Fig. 2.5.



$$\sum f_x = -x_a - 1.5 = 0$$

$$x_a = -1.5t \leftarrow = 1.5t \rightarrow$$

$$\sum f_y = y_a - 3 - 2 = 0 \Rightarrow y_a = 5t$$

$$\sum M_a = M_a - 3 \times 1.5 - 2 \times 3 = 0$$

$$M_a = 10.5t \cdot m \curvearrowright$$