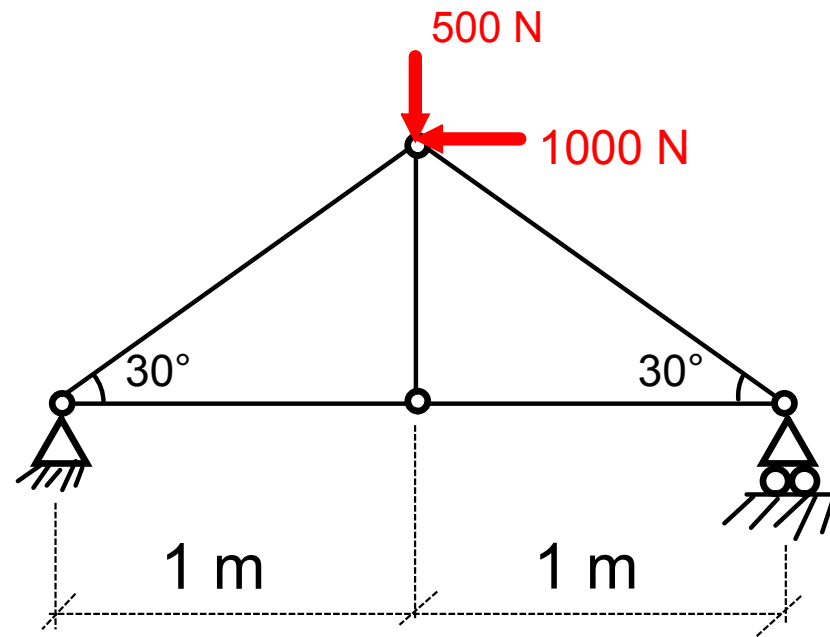
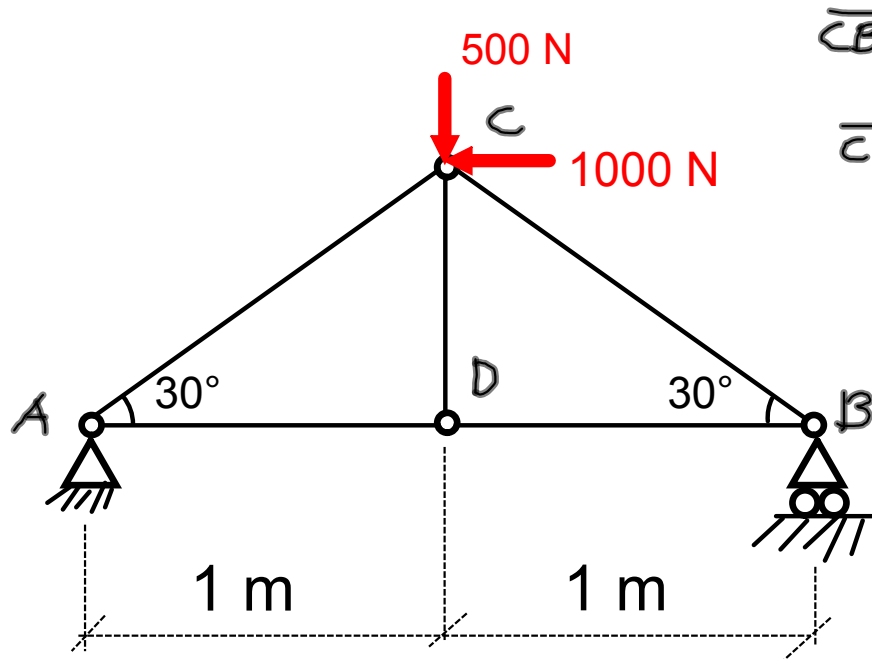


ESERCIZIO

Trovare le reazioni vincolari e gli sforzi sulle aste.



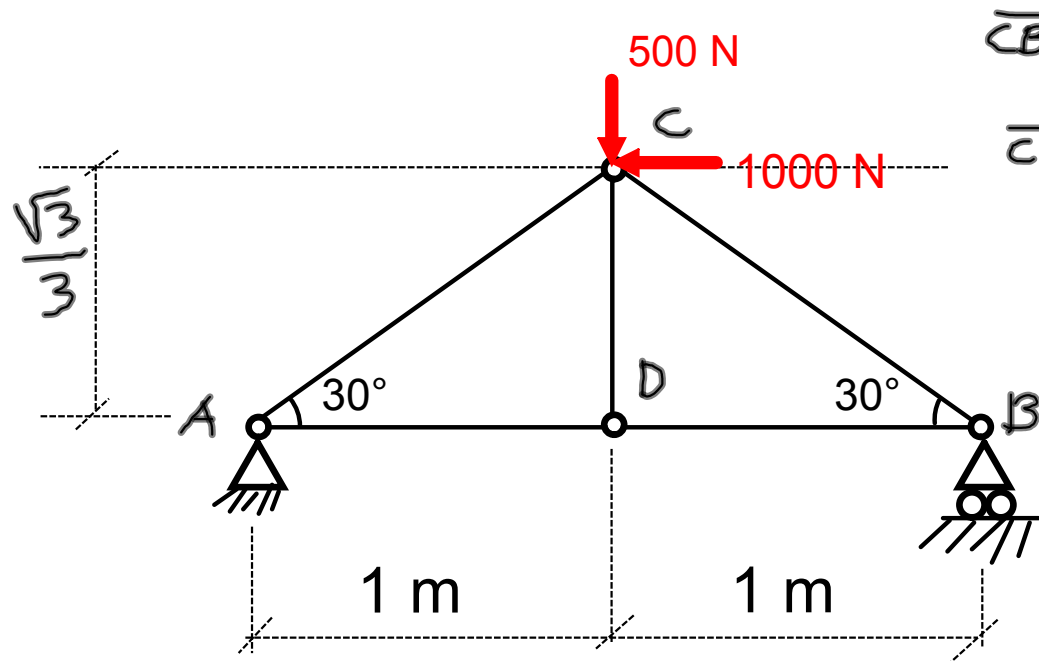


$$\overline{CB} \cdot \cos 30^\circ = \overline{DB}$$

$$\overline{CB} = \frac{\overline{DB}}{\cos 30^\circ}$$

$$\overline{CB} = \frac{1}{\frac{\sqrt{3}}{2}} = \frac{2}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$$

$$\overline{CD} = \overline{CB} \cdot \sin 30^\circ \Rightarrow \overline{CD} = \frac{2\sqrt{3}}{3} \cdot \frac{1}{2} = \frac{\sqrt{3}}{3}$$

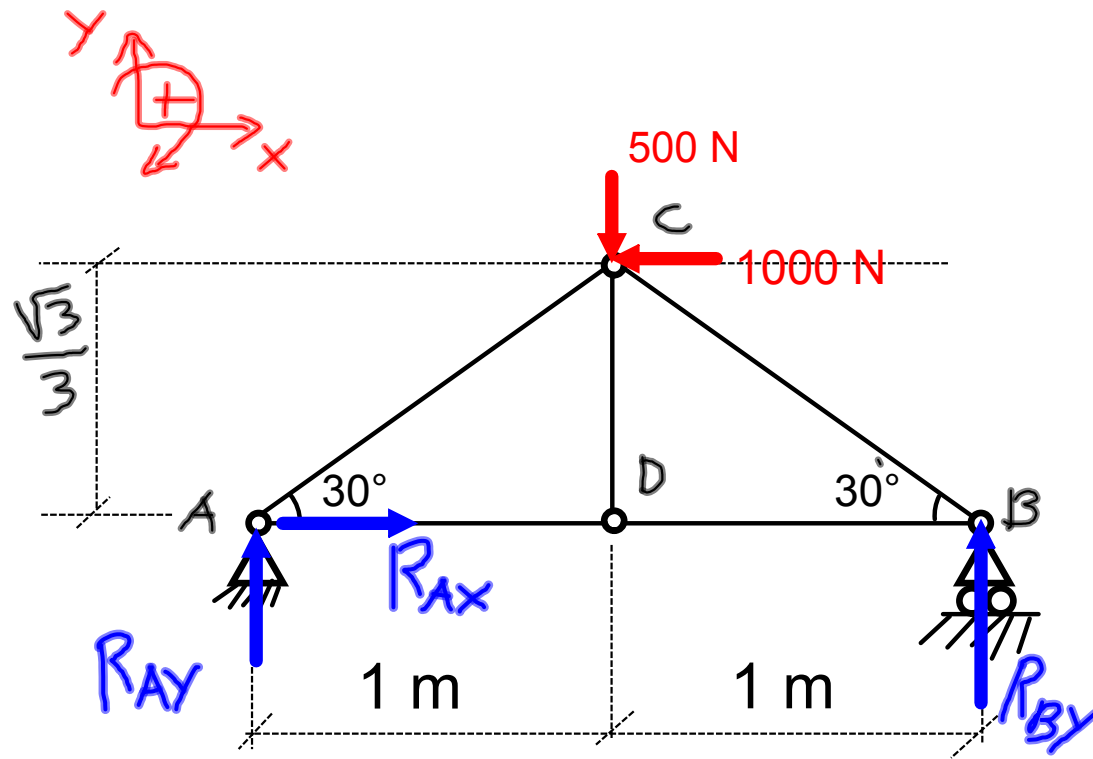


$$\overline{CB} \cdot \cos 30^\circ = \overline{DB}$$

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$$\overline{CB} = \frac{1}{\frac{\sqrt{3}}{2}} = \frac{2}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$$

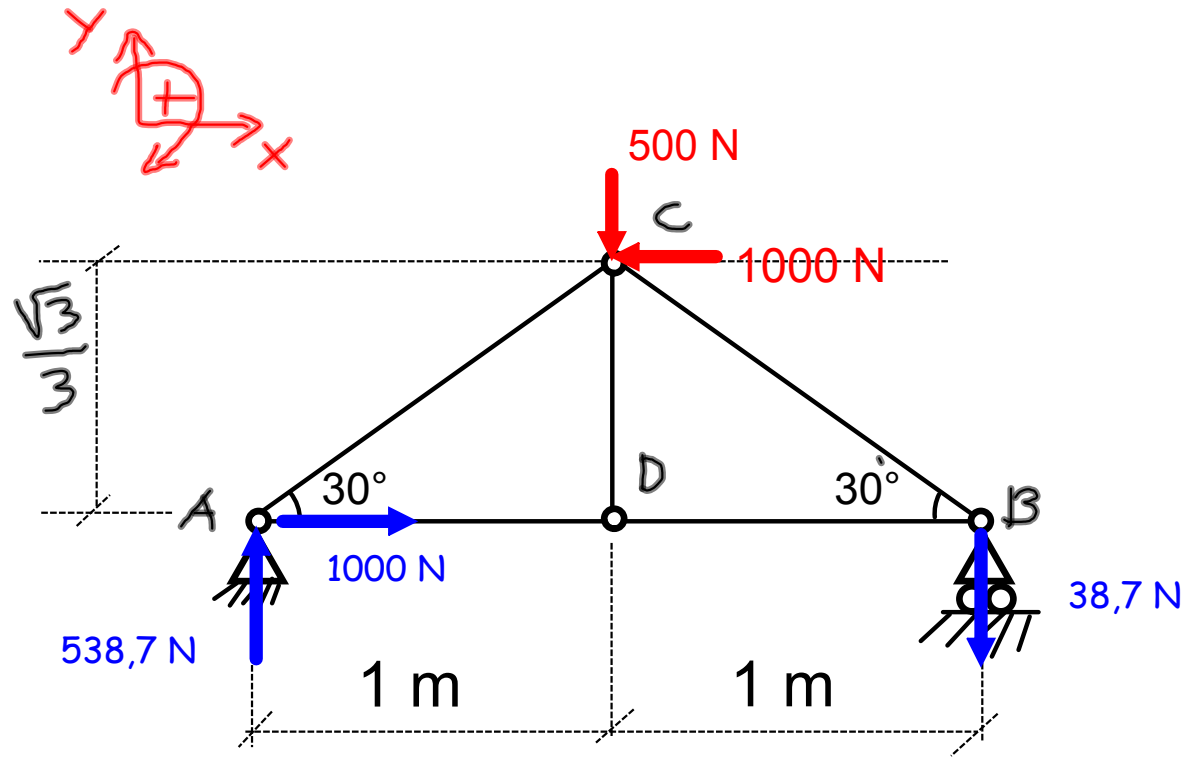
$$\overline{CD} = \overline{CB} \cdot \sin 30^\circ \Rightarrow \overline{CD} = \frac{2\sqrt{3}}{3} \cdot \frac{1}{2} = \frac{\sqrt{3}}{3}$$



$$\sum F_x = 0 \quad R_{Ax} - 1000 = 0 \quad R_{Ax} = 1000 \text{ N}$$

$$\sum F_y = 0 \quad R_{Ay} + R_{By} - 500 = 0 \quad R_{Ay} = 538,7 \text{ N}$$

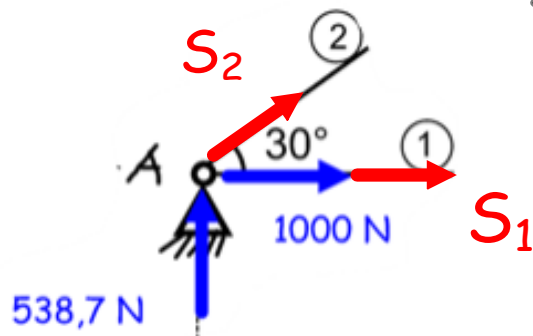
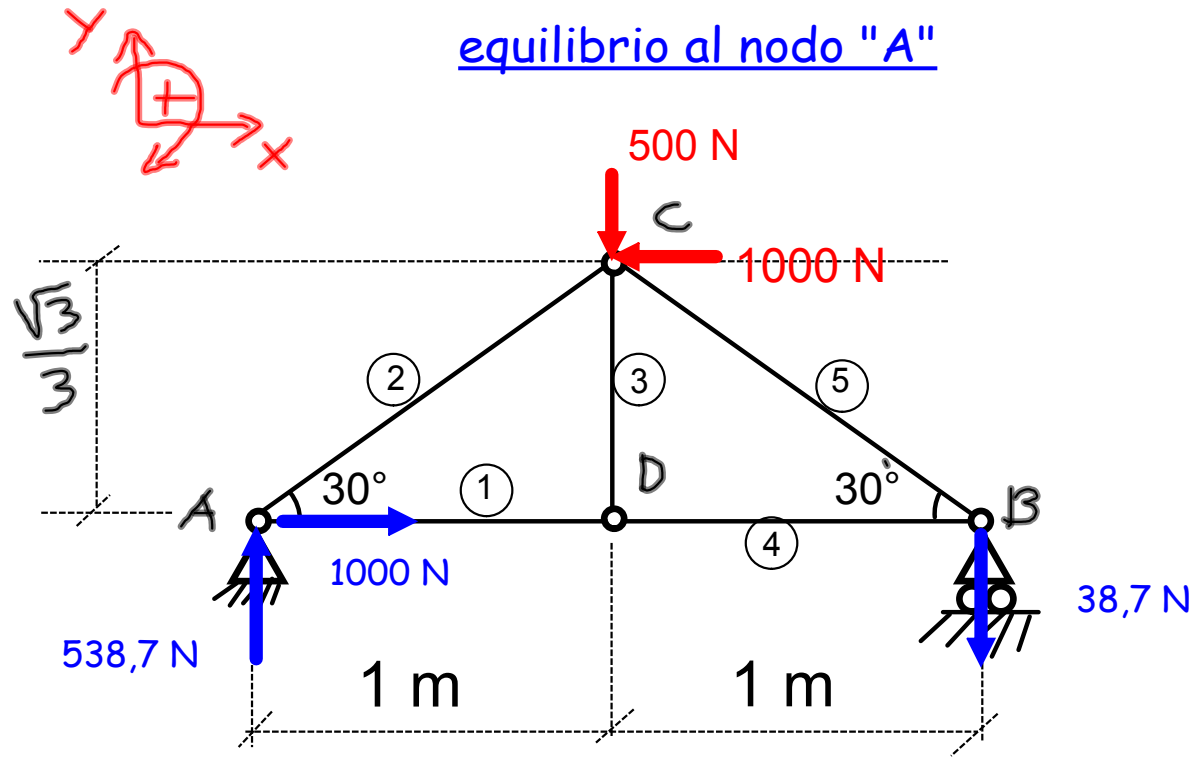
$$\sum M_A = 0 \quad +500 \cdot 1 - 1000 \cdot \frac{\sqrt{3}}{3} - R_{By} \cdot 2 = 0 \Rightarrow R_{By} = -38,7 \text{ N}$$



$$\sum F_x = 0 \quad R_{Ax} - 1000 = 0 \quad R_{Ax} = 1000 \text{ N}$$

$$\sum F_y = 0 \quad R_{Ay} + R_{By} - 500 = 0 \quad R_{Ay} = 538,7 \text{ N}$$

$$\sum M_A = 0 \quad +500 \cdot 1 - 1000 \cdot \frac{\sqrt{3}}{3} - R_{By} \cdot 2 = 0 \Rightarrow R_{By} = -38,7 \text{ N}$$

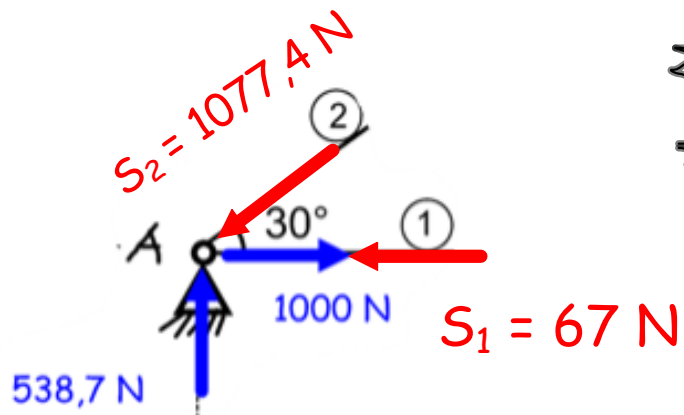
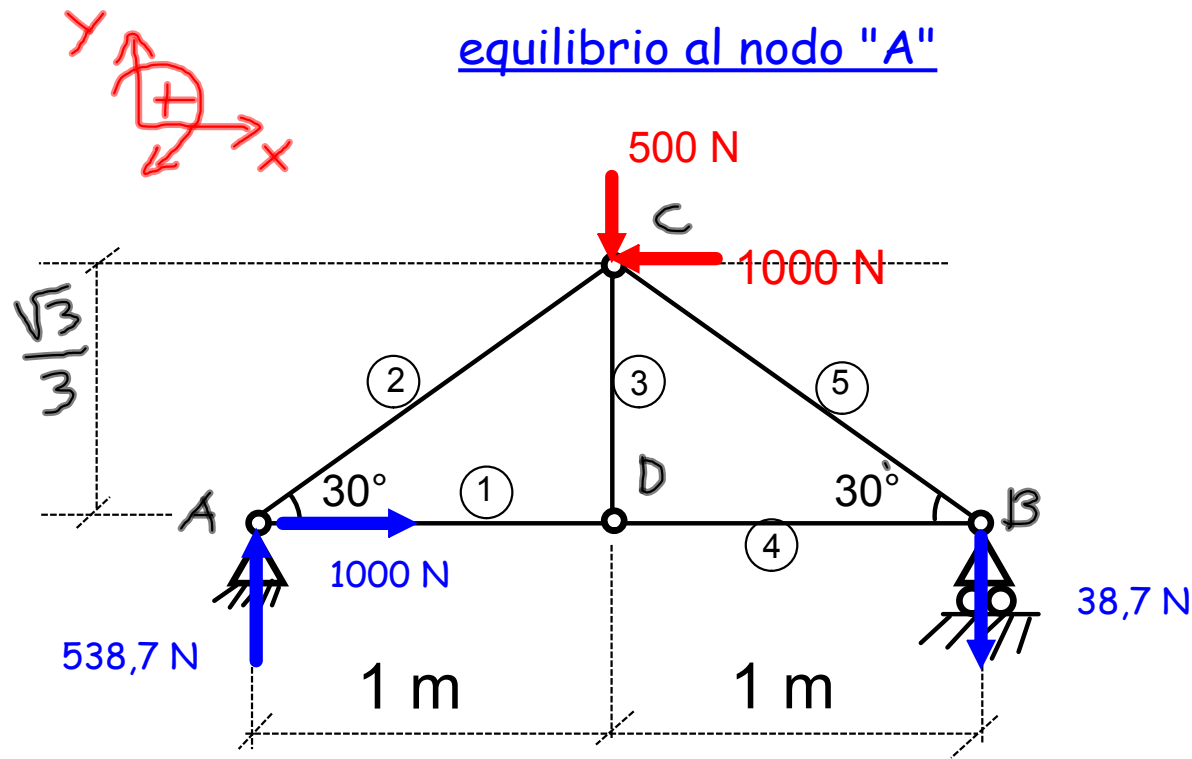


$$\sum F_x = 0 \quad S_1 + 1000 + S_2 \cdot \cos 30^\circ = 0$$

$$\sum F_y = 0 \quad S_2 \sin 30^\circ + 538,7 = 0$$

$$S_2 = \frac{-538,7}{\frac{1}{2}} = -1077,4 \text{ N}$$

$$S_1 = 1077,4 \cdot \frac{\sqrt{3}}{2} - 1000 \cong -67 \text{ N}$$

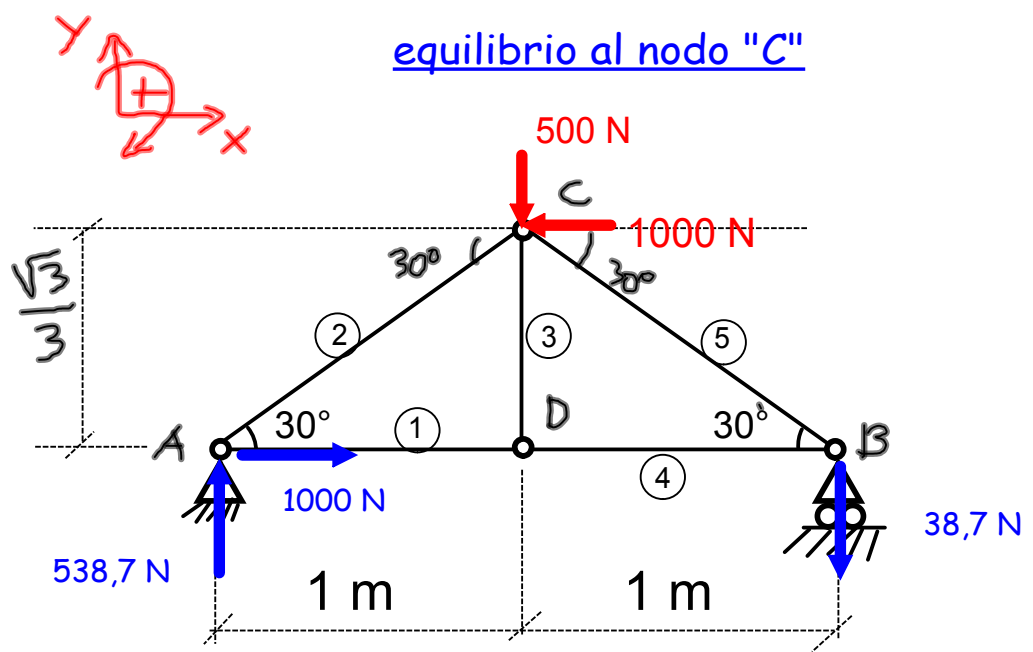


$$\sum F_x = 0 \quad S_1 + 1000 + S_2 \cdot \cos 30^\circ = 0$$

$$\sum F_y = 0 \quad S_2 \sin 30^\circ + 538,7 = 0$$

$$S_2 = \frac{-538,7}{\frac{1}{2}} = -1077,4 \text{ N}$$

$$S_1 = 1077,4 \cdot \frac{\sqrt{3}}{2} - 1000 \cong -67 \text{ N}$$



$\Sigma F_x = 0$

$$1077,4 \cdot \cos 30^\circ - 1000 - S_5 \cos 30^\circ = 0$$

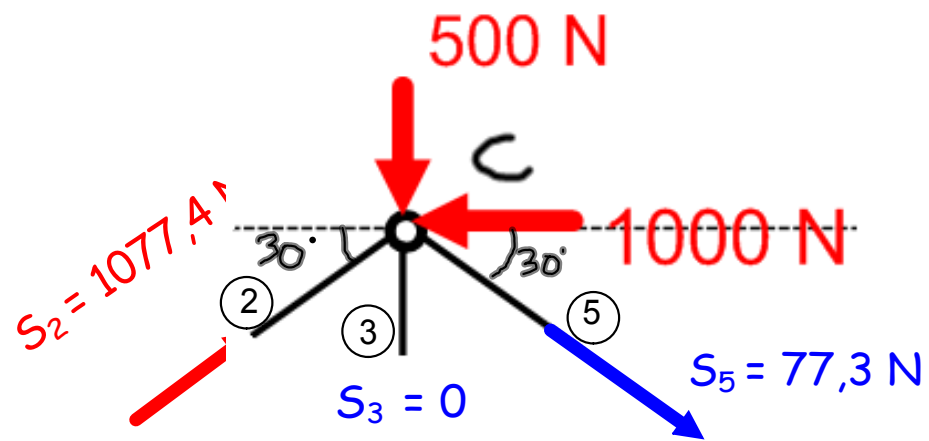
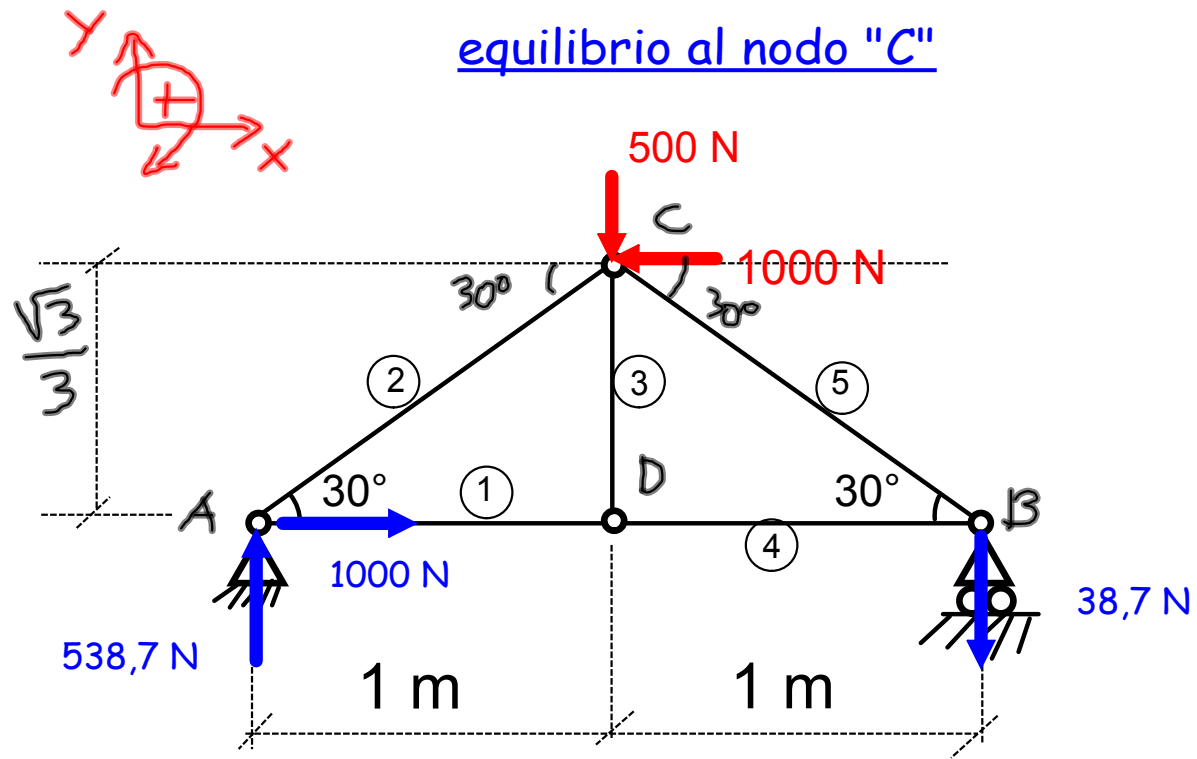
$$1077,4 \cdot \frac{\sqrt{3}}{2} - 1000 - S_5 \frac{\sqrt{3}}{2} = 0$$

$$S_5 = -77,3 \text{ N}$$

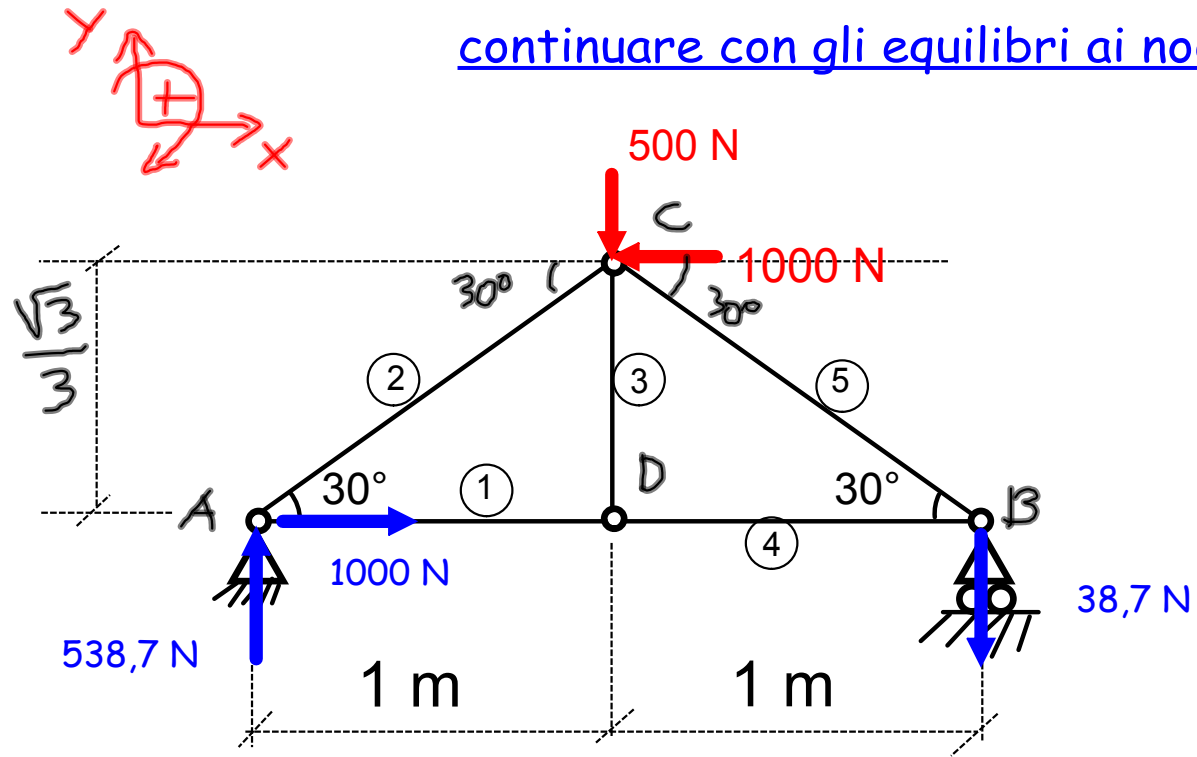
$\Sigma F_y = 0$

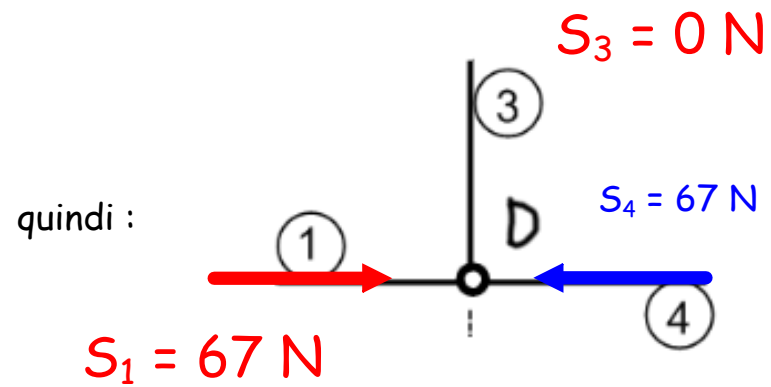
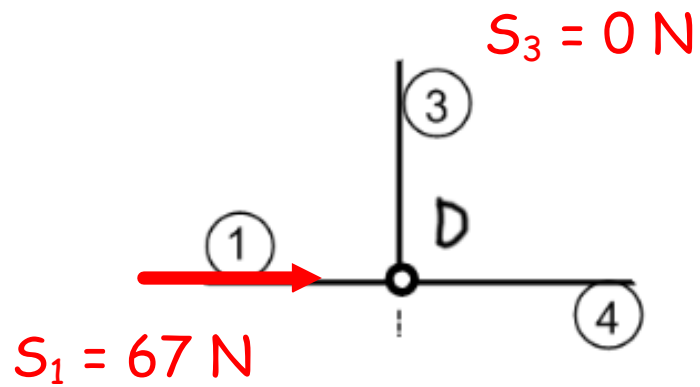
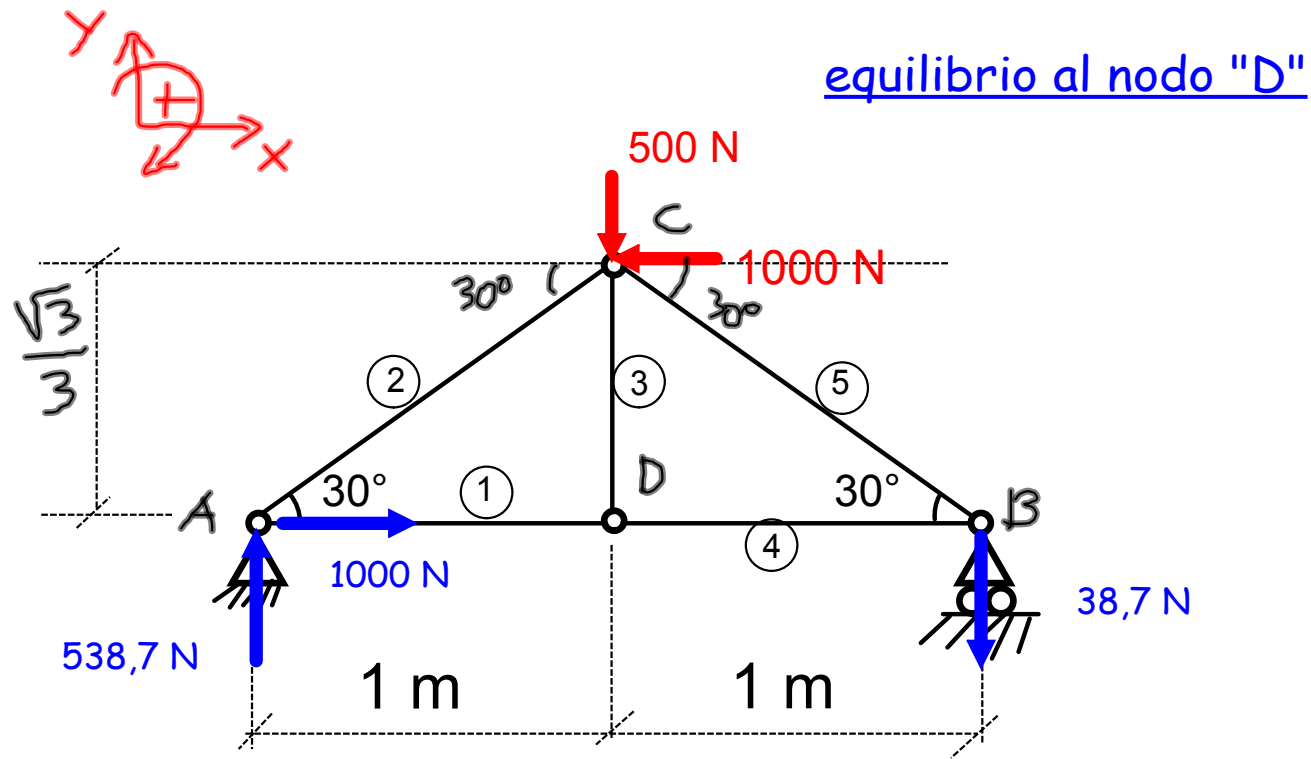
$$1077,4 \cdot \sin 30^\circ + S_3 + S_5 \cdot \sin 30^\circ - 500 = 0$$

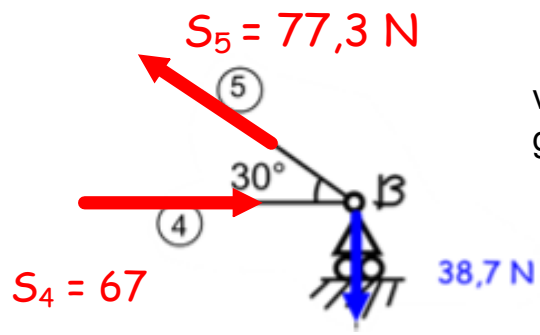
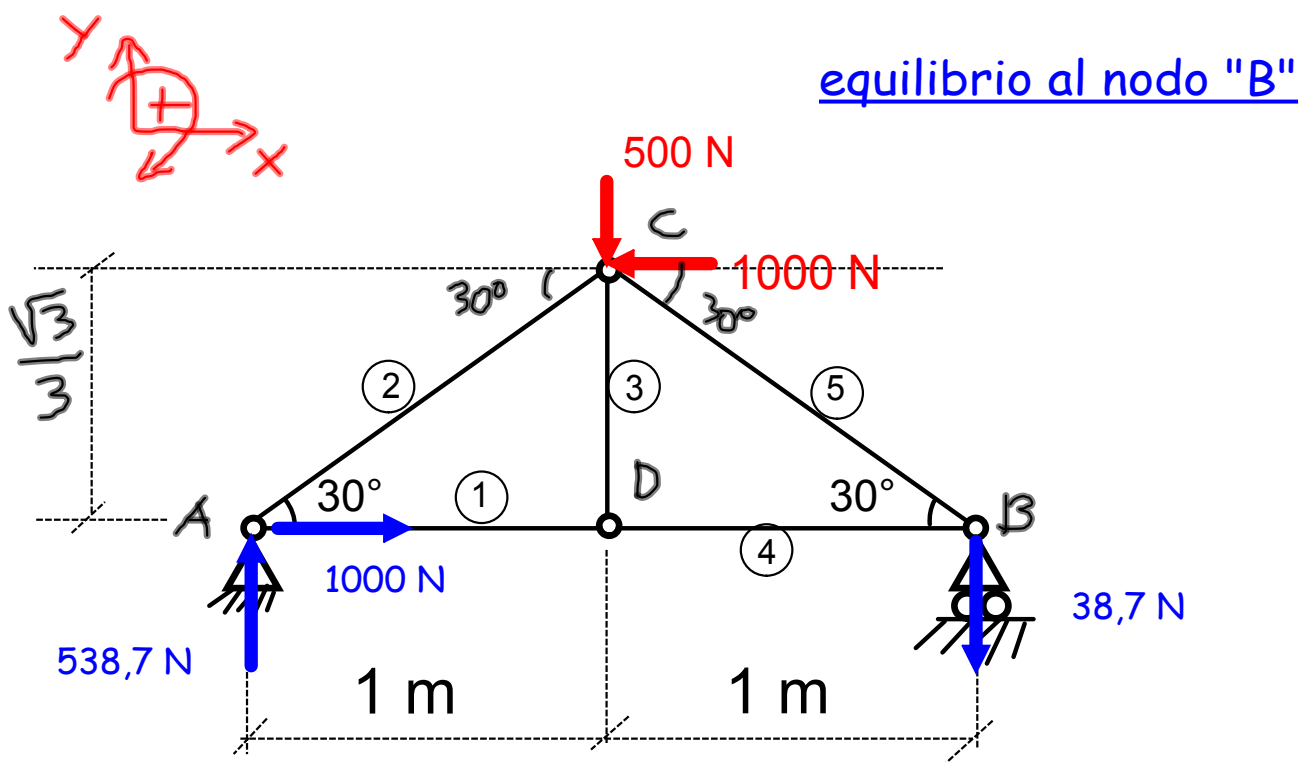
$$1077,4 \cdot \frac{1}{2} + S_3 + (-77,3) \cdot \frac{1}{2} - 500 = 0 \quad S_3 = 0 \text{ N}$$



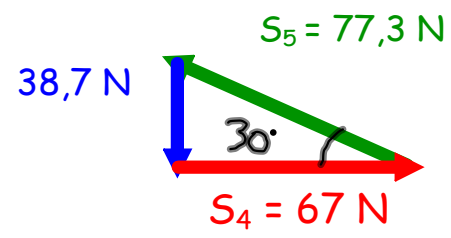
continuare con gli equilibri ai nodi "D" e "B"







verifichiamo se risulta giusto :



Verificato !!!

F I N E !

