



QUIZ 3

Ad, Soyad:

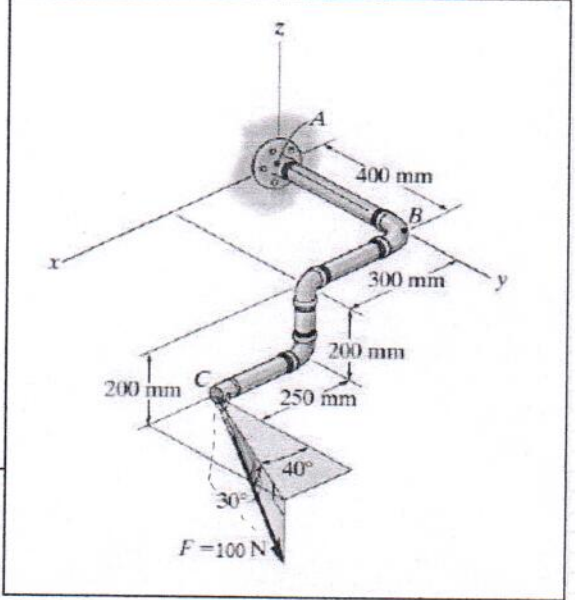
No:

CEVAP ANAHTARI

7 Şubat 2017

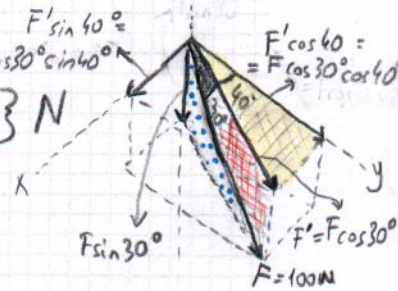
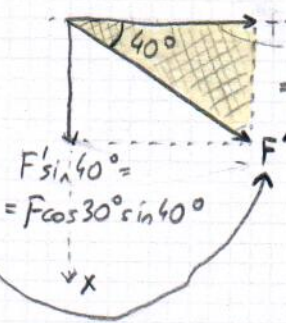
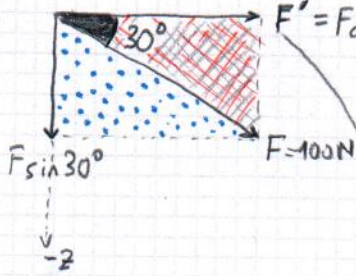
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Problem: Şekildeki sisteme 100 N'lık kuvvet uygulanmaktadır. A noktasında oluşan momenti bulunuz.



$$\vec{r}_{AC} = \{(0.55-0)\vec{i} + (0.4-0)\vec{j} + (-0.2-0)\vec{k}\} \text{ m}$$
$$= \{0.55\vec{i} + 0.4\vec{j} - 0.2\vec{k}\} \text{ m}$$
$$C(0.55, 0.4, -0.2) \text{ m}$$

$$\vec{F} = |F| \cdot \{ \cos 30^\circ \sin 40^\circ \vec{i} + \cos 30^\circ \cos 40^\circ \vec{j} - \sin 30^\circ \vec{k} \} \text{ N}$$



$$\vec{F} = 100 \cdot \{ 0.5567\vec{i} + 0.6634\vec{j} - 0.5000\vec{k} \} \text{ N} = \{ 55.67\vec{i} + 66.34\vec{j} - 50.00\vec{k} \} \text{ N}$$

A noktası etrafındaki moment;

$$\vec{M}_A = \vec{r}_{AC} \times \vec{F}$$
$$= \begin{vmatrix} \vec{i} & \vec{j} & \vec{k} \\ 0.55 & 0.40 & -0.2 \\ 55.67 & 66.34 & -50.00 \end{vmatrix}$$

$$\vec{M}_A = \{ -6.732\vec{i} + 16.366\vec{j} + 14.219\vec{k} \} \text{ N}\cdot\text{m}$$