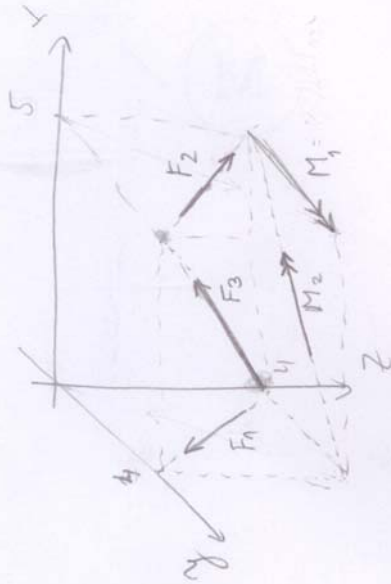




$$|F_1| = |F_2| = 3 \text{ kN}$$

$$|F_3| = 4 \text{ kN}$$

$$|M_1| = 8 \text{ kNm}$$

$$|M_2| = 5 \text{ kNm}$$

1) Jaká je výsledná síla F_1 a F_2 ?

- opacná orientace $\Rightarrow F_{R1} = F_1 + F_2 = 0$

- druhá síla $\Rightarrow |M_{R1}| = |F_1| \cdot r_1 = |F_2| \cdot r_2 = 15 \text{ kNm}$

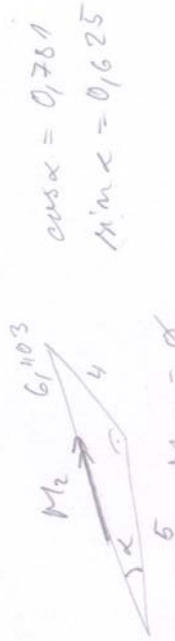
$$M_{R1y} = M_{R1z} = -15 \cos 45^\circ = -7,5\sqrt{2} = -10,61$$

2) Jaká je síla výsledná celé soustavy?

$$r_3 = [5; 4; 0] - [0; 0; 4] = (5; 4; -4) \quad |r_3| = 7,55$$

$$F_3 = \frac{r_3}{|r_3|} \cdot |F_3| = \frac{(5; 4; -4)}{7,55} \cdot 4 = (2,65; 2,12; -2,12)$$

$$F_R = F_3 = (2,65; 2,12; -2,12)$$



$$\cos \alpha = 0,761$$

$$\sin \alpha = 0,625$$

$$M_{R2} = 0$$

$$M_{R2y} = -|M_2| \sin \alpha = -3,123$$

$$M_{R2x} = |M_2| \cos \alpha = 3,905$$

3) Jaká je momentová výslednice soustavy?

$$M_{R2x} = -2,12 \cdot 4 + 3,905 = -4,575 \text{ kNm}$$

$$M_{R2y} = -10,61 + 2,65 \cdot 4 + 8,423 =$$

$$= 4,867 \text{ kNm}$$

$$M_{R2z} = -10,61 \text{ kNm}$$