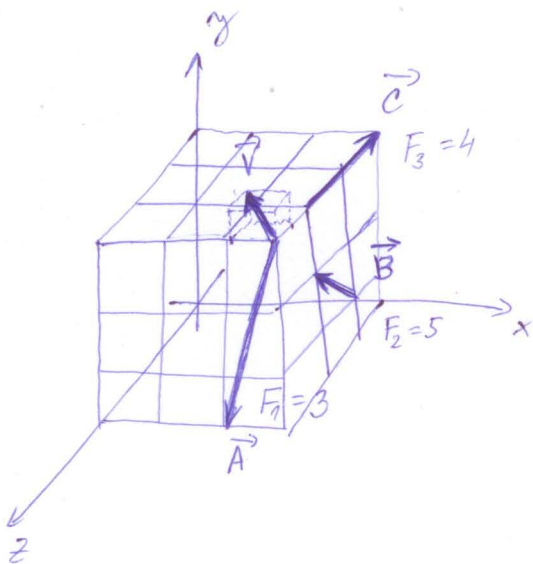


Určete výslednici sil F_1 , F_2 a F_3 působících ve směrech vektorů A , B a C .

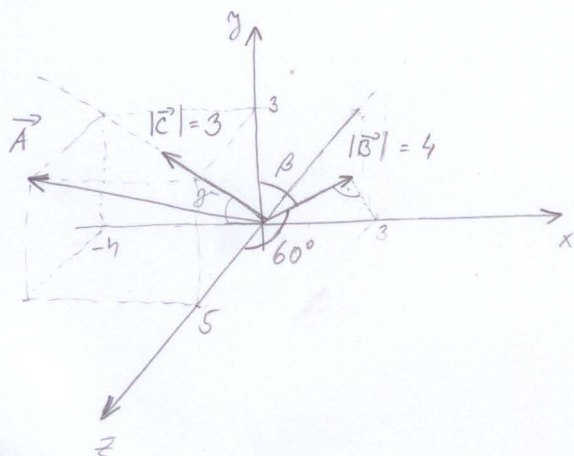


	počátek	konc	vektor	velikost	jedn. vek	$ F $	F
A	3; 3; 3	2; 0; 3	-1; -3; 0	3,162	-0,316; -0,949; 0	3	-0,949; -2,847; 0
B	3; 1; 1	3; 2; 2	0; 1; 1	1,414	0; 0,707; 0,707	5	0; 3,535; 3,535
C	3; 3; 2	3; 3; 0	0; 0; -2	2	0; 0; -1	4	0; 0; -4

$$\Sigma -0,949; 0,688; -0,464$$

$$|\vec{V}| = \sqrt{(-0,949)^2 + 0,688^2 + (-0,464)^2} = 1,261$$

Určete výslednici vektorů A, B a C.



$$C_x = -3 \cdot \cos 8^\circ = -3 \cdot \frac{4}{5} = -\frac{12}{5}$$

$$C_y = 3 \sin 8^\circ = 3 \cdot \frac{3}{5} = \frac{9}{5}$$

$$C_z = 0$$

$$\underline{C \left[-\frac{12}{5}; \frac{9}{5}; 0 \right]}$$

$$\underline{A \left[-4; 3; 5 \right]}$$

$$B_x = 3$$

$$B_z = 4 \cdot \cos 60^\circ = 2$$

$$1 = \cos^2 \beta + \cos^2 60^\circ + \left(\frac{3}{4} \right)^2$$

$$\cos^2 \beta = 1 - \frac{1}{4} - \frac{9}{16} = \frac{3}{16}$$

$$\cos \beta = \frac{\sqrt{3}}{4} = \frac{B_y}{4}$$

$$\sqrt{3} = B_y$$

$$\underline{B \left[3; \sqrt{3}; 2 \right]}$$

$$\underline{\vec{V} \left[-3,4; 6,53; 7 \right]}$$

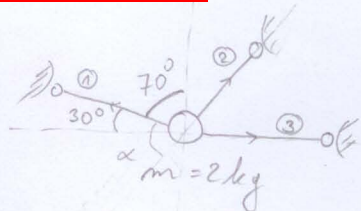
$$|\vec{V}| = 10,16$$

$$\cos \alpha_v = \frac{3,4}{10,16} = 0,335$$

$$\cos \beta_v = \frac{6,53}{10,16} = 0,643$$

$$\cos \gamma_v = 0,689$$

Určete reakce.



$$\uparrow: R_1 \cos 70^\circ - 20 = 0$$

$$\underline{R_1 = 58,48 \text{ N}}$$

$$\rightarrow: -R_1 \cos 30^\circ + R_3 = 0$$

$$\underline{R_3 = 50,64 \text{ N}}$$

$$\nearrow: -R_1 \cos \alpha + R_2 = 0$$

$$R_2 = R_1 \sqrt{1 - \cos^2 70^\circ - \cos^2 30^\circ}$$

$$R_2 = R_1 \sqrt{1 - 0,11698 - 0,75}$$

$$\underline{R_2 = 21,33 \text{ N}}$$