

Diagram illustrating the Triangle Rule for vector addition. Three vectors \vec{P} , \vec{Q} , and \vec{R} are shown originating from a common point O . The resultant vector \vec{R} is represented by the dashed line connecting the tip of \vec{P} to the tip of \vec{Q} . The horizontal components are labeled \vec{S}_1 and \vec{S}_2 , and the vertical components are labeled \vec{Y} and \vec{Y} .

$$\frac{OP}{OQ} = \frac{OS_1}{AC}$$

$$\frac{OQ}{OQ} = \frac{OS_2}{OB}$$

$$\frac{OP}{OQ} = \frac{CB}{AC}$$

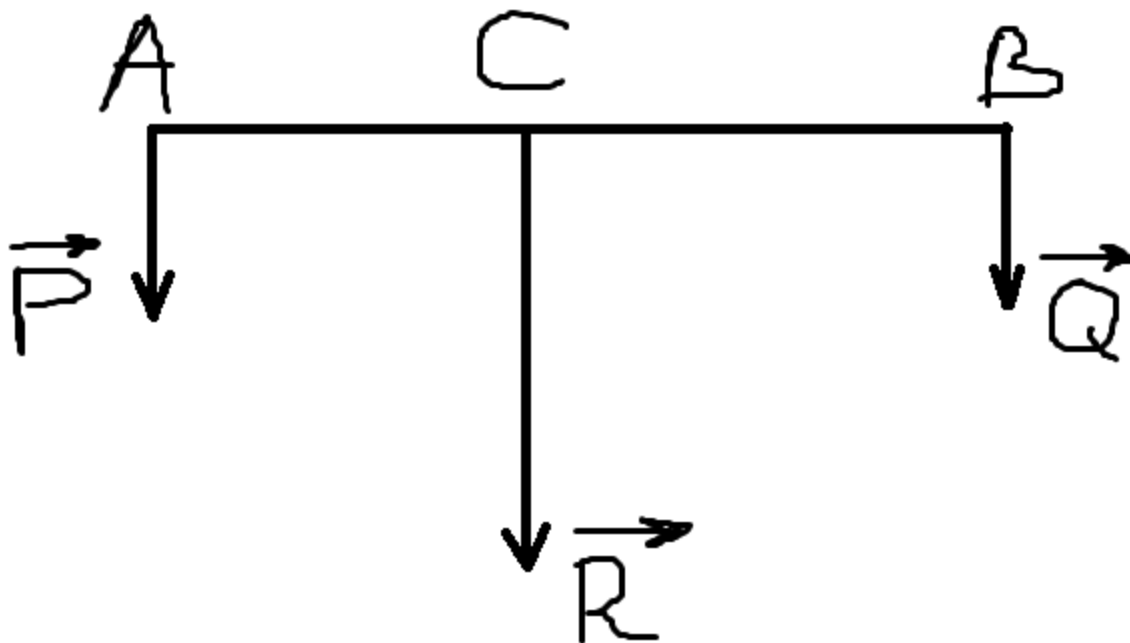
$$\frac{OP}{CB} = \frac{OQ}{AC}$$

$$\frac{P+Q}{AC+AB} = \frac{P}{CB} = \frac{Q}{AB}$$

$$\frac{P+Q}{AC+CB} = \frac{R}{AB}$$

$$\frac{P}{CB} = \frac{Q}{AC} = \frac{R}{AB}$$

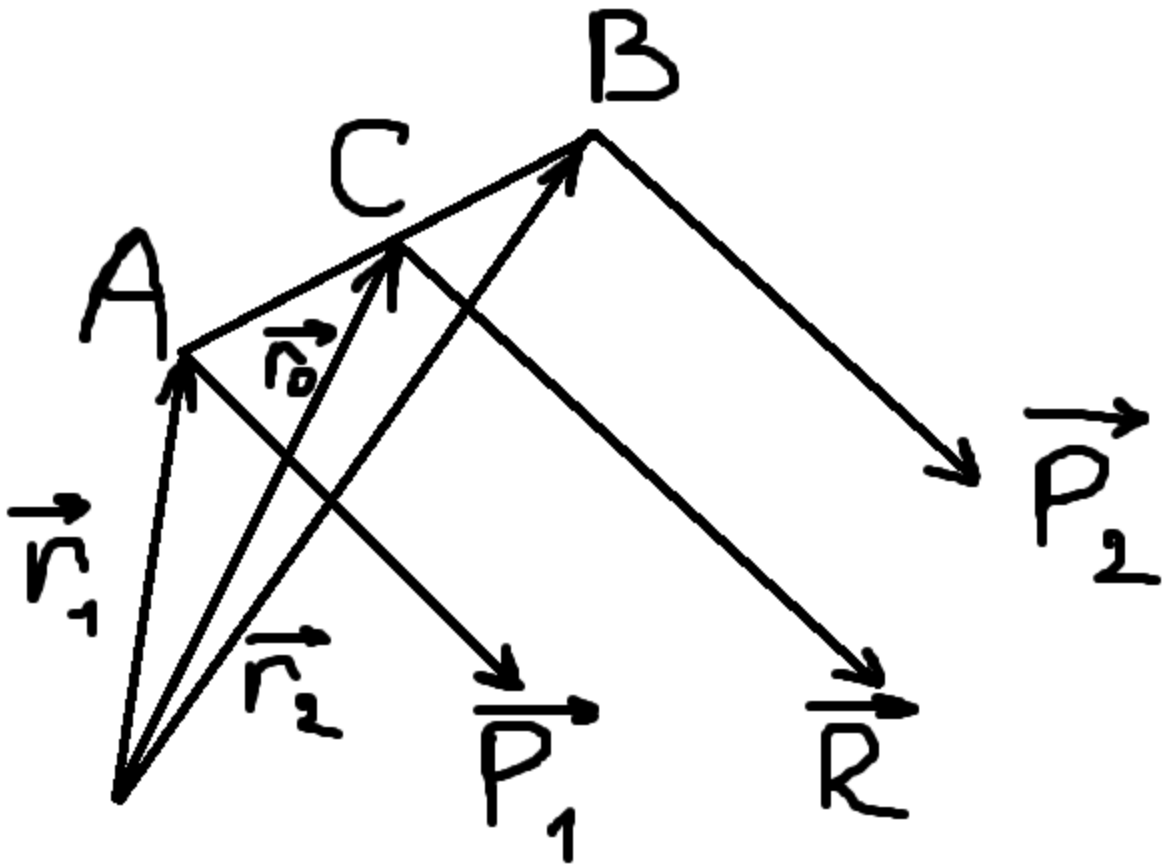
Как разложить результирующую силу R на 2 параллельные:



$$R = P + Q; \quad Q = R - P$$

$$\frac{P}{CB} = \frac{Q}{AC}; \quad CB = AC \cdot \frac{P}{Q}$$

$$\vec{P} \cdot AC = \vec{Q} \cdot CB$$



r_0 —?, r_1 , r_2 знаем.

$$\vec{r}_1 + \vec{AC} = \vec{r}_0$$

$$\vec{r}_0 + \vec{CB} = \vec{r}_2$$

$$\vec{AC} = \vec{r}_0 - \vec{r}_1$$

$$\vec{CB} = \vec{r}_2 - \vec{r}_0$$

$$\frac{\vec{AC}}{P_2} = \frac{\vec{CB}}{P_1} \quad (\text{соотношение плеч и сил})$$

$$\frac{\vec{r}_0 - \vec{r}_1}{P_2} = \frac{\vec{r}_2 - \vec{r}_0}{P_1} \Rightarrow \frac{P_1 \vec{r}_1 + P_2 \vec{r}_2}{P_1 + P_2} \Rightarrow$$

нашли C .

Для n векторов:

$$\vec{r_0} = \frac{\sum_{i=1}^n P_i r_i}{\sum_{i=1}^n P_i}$$