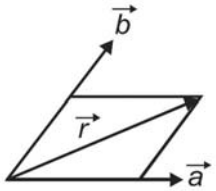
EXPRESSIONS AS LINEAR COMBINATION

Coplanar vectors

If $\vec{a}$ and $\vec{b}$ be two given non-collinear vectors, then every vector $\vec{r}$, coplanar with $\vec{a}$ and $\vec{b}$ can be represented as a linear combination.

$$\vec{r} = x\vec{a} + y\vec{b}$$

x, y being some scalars. Moreover this representation is unique.



Arbitrary System of Vectors

If $\vec{a}, \vec{b}, \vec{c}$ be three given non-coplanar vectors, then any vector $\vec{r}$ can be represented as a linear combination.

$$\vec{r} = x\vec{a} + y\vec{b} + z\vec{c}$$

x, y, z being some scalars. Moreover, this representation is unique.