Answer on Question #77241, Physics / Mechanics | Relativity | for completion

avector= 2icap+4jcap+6kcap bvector=2icap+3jcap+mkcap find the value of m

Solution:

$$\bar{a} = 2\hat{\imath} + 4\hat{\jmath} + 6\hat{k}, \bar{b} = 2\hat{\imath} + 3\hat{\jmath} + m\hat{k}.$$

As well as we have no connection between vectors a and b we can take m arbitrary: mϵR.

Let us suppose a and b are perpendicular. If so their dot-product is zero:

$$\bar{a} * \bar{b} = 2 * 2 + 4 * 3 + 6 * m = 0. m = -\frac{8}{3}.$$

Answer: mϵR; in case a is perpendicular to b: $m = -\frac{8}{3}$.