

Høsten 2016

FYS100 Fysikk

Problems week 35

First some problems from the book:

- 3.14 (ignore the world *graphically*), 3.17, 3.18
- 3.60, 3.67

Additional Problem 1: Consider the vectors (in cartesian coordinates, given some basis and coordinate system),

$$\vec{\mathbf{A}} = (-1, 4), \quad \vec{\mathbf{B}} = (1, 2), \quad \vec{\mathbf{C}} = (2, 1). \quad (1)$$

Compute

- The projection of $\vec{\mathbf{A}}$ onto $\vec{\mathbf{B}}$.
- The projection of $\vec{\mathbf{A}}$ onto $\vec{\mathbf{C}}$.

Is the sum of the projections equal to the original vector $\vec{\mathbf{A}}$?

Find the decomposition of $\vec{\mathbf{A}}$ onto $\vec{\mathbf{B}}$ and $\vec{\mathbf{C}}$. Use whatever method you find simplest.

Additional Problem 2: Consider the vectors in 3-D

$$\vec{\mathbf{A}} = (1, 2, 1), \quad \vec{\mathbf{B}} = (2, 1, 2). \quad (2)$$

Compute

- $\vec{\mathbf{A}} \times \vec{\mathbf{B}}$.
- $\vec{\mathbf{A}} \cdot \vec{\mathbf{B}}$.

Find the relative angle between the vectors, using either the scalar or the vector product. Do they agree?