

Vectors

You already know that there are many physical quantities that are described by vectors:

$$\vec{F}, \vec{p}, \vec{v}, \vec{a}, \vec{\Delta x}, \dots$$

The mathematics of vectors is actually really interesting!! ... Why?

Symmetries !!

Noether's theorem \rightarrow every symmet in nature is connected to a conservation law.

Example 1: Conservation of Energy

\Rightarrow time invariance

