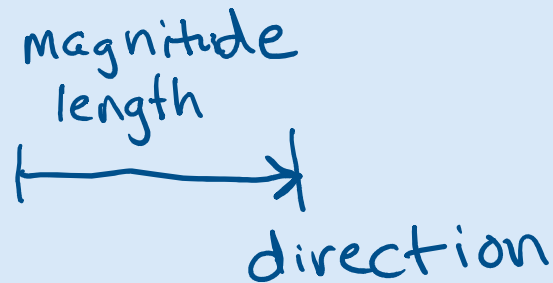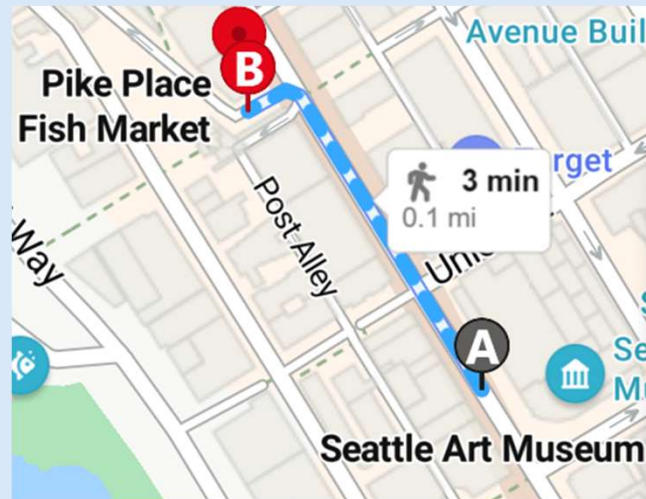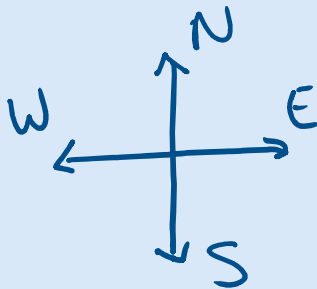# Vectors on a number line.

Vectors are a way of modeling data that have both amount or quantity and direction.

Vectors have magnitude (length, amount or quantity) and direction.

You may be familiar with vectors on a map when you get GPS directions. There the directions are north, east, south, and west.
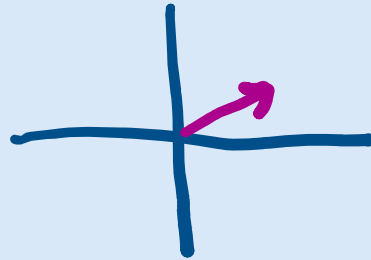

First, we will be talking about vectors on a single Real number line.

Later, we will talk about vectors on a coordinate axis system. Eventually, we will talk about vectors in higher order vector spaces.

First, we will be talking about vectors on a single Real number line, in one dimension.
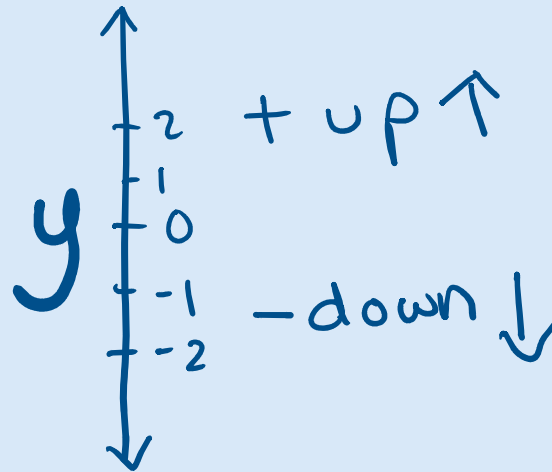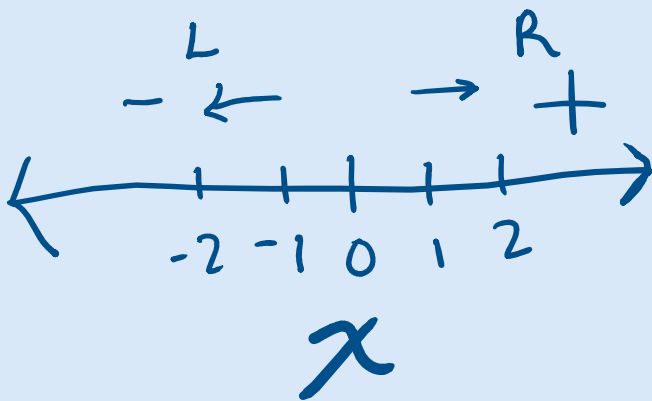
Later, we will talk about vectors on a coordinate axis system, in two dimensions.

Eventually, we will talk about vectors in higher order vector spaces. Since we can't draw these, we have to use other ways of describing them.

The direction on a number line is positive or negative.

On a Real number line there are only two directions, positive and negative. In algebra, we usually use x for the horizontal number line and y for the vertical number line. For now, we will do one at a time so just one variable.

Magnitude is the term used for the amount, quantity, length, strength… of the term or item.

Examples:

- Length of a wall
- Height of a wall
- Weight of a cat
- Number of steps traveled, or distance traveled

Vectors on a number line are drawn going in the direction from the tail to the head. The magnitude is how long the vector is. The absolute value symbol or double bars are used to represent the length or magnitude.

(c) Crainix
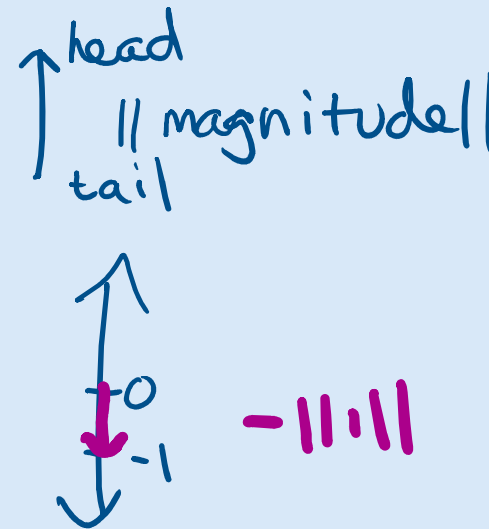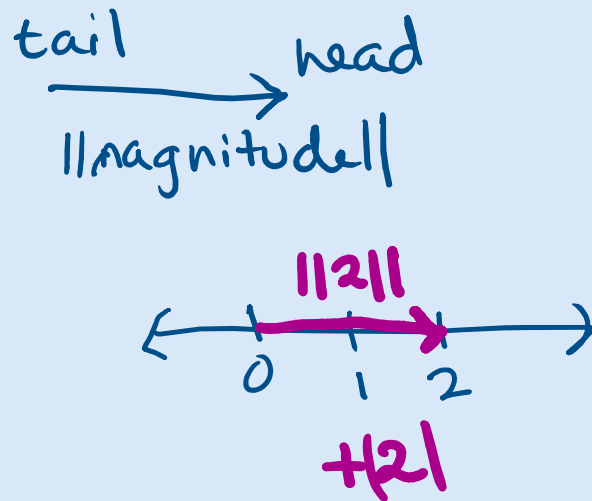
The vector can be anywhere on the number line as it has direction and length but no location. I am just using number lines in the same direction because when we do algebra with an axis system, the horizontal and vertical number lines represent different directions.

(c) Crainix
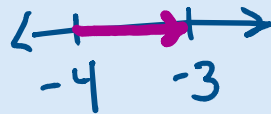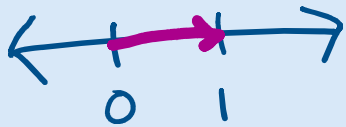
Vectors are useful concepts for when we do algebra and operations with integers and Real numbers. We are now going to move into algebra and start with single variables that can be modeled on a horizontal OR vertical number line.

You can practice some vectors here is you want first.