Section 2.1: Vectors and Scalars

- Scalars are quantities that have only magnitude (and units).

  They are represented by numbers.

  - E.g. 10 km, 14 seconds.

- Vec tors are quantities that have both direction and magnitude (and units).

  They are represented by number and direction,

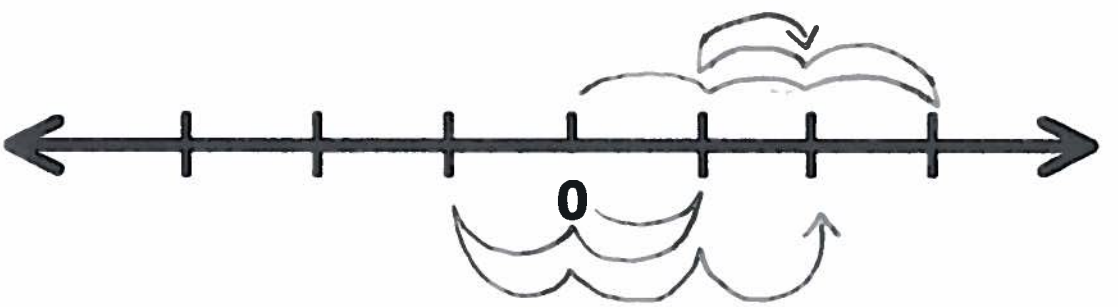
  or by arrow.

  - E.g. 3 m/s North or ↑ 3 m/s

✳ if you were to take away "North", would be scalar

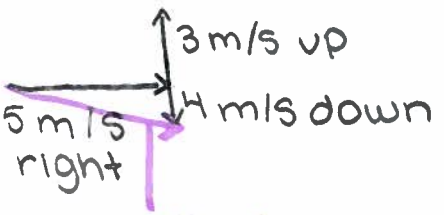
Adding Numbers:

- Adding numbers is easy. The basic rules are:
  - We can put them in any order.
  - Each time we add a new number, we start where the last one left us.
  - The answer (result) is counted from start to finish
    - E.g. 3 + (-2) + 1 vs. 1 + (-2) + 3



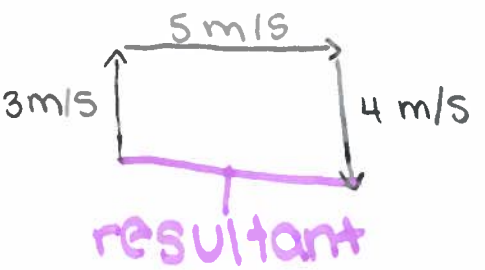
Adding Vectors:

- We use the same three rules for adding vectors:
  - We can put them in any order.
  - Each time we add a new vector, we start where the last one left us.
  - The answer (resultant) goes from start to finish
    - 5 m/s right + 3 m/s up + 4 m/s down



OR

*these resultants are the same
-same magnitude (length)
-same direction



Distance vs. Displacement:

	Vector or Scalar?	Description
Distance	scalar	How far something traveled ***along the path it took.***
Displacement	vector	• Change in position. • Straight arrow from start to finish.