

# Unit 5 - Vectors

## Introduction to Vectors

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Apr. 17/2018

#### Definitions:

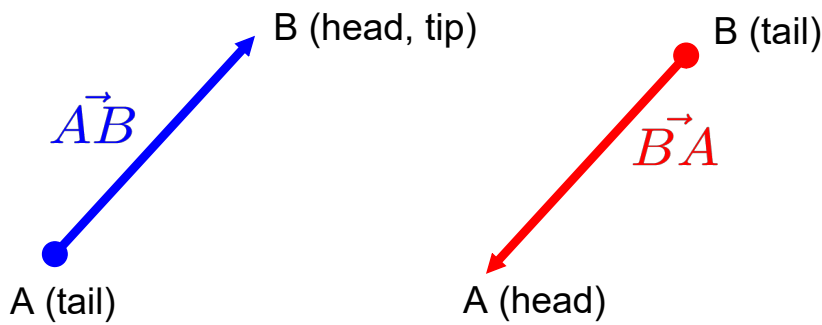
(a) Scalar - A quantity whose magnitude (size) can be specified by just one number.

e.g., area, temperature, speed

(b) Vector - A quantity whose specification requires both magnitude and direction.

e.g., force, velocity

## Vector Representation



If a vector is drawn between two points, the vector from A to B is written  $\vec{AB}$

Similarly, from B to A is  $\vec{BA}$

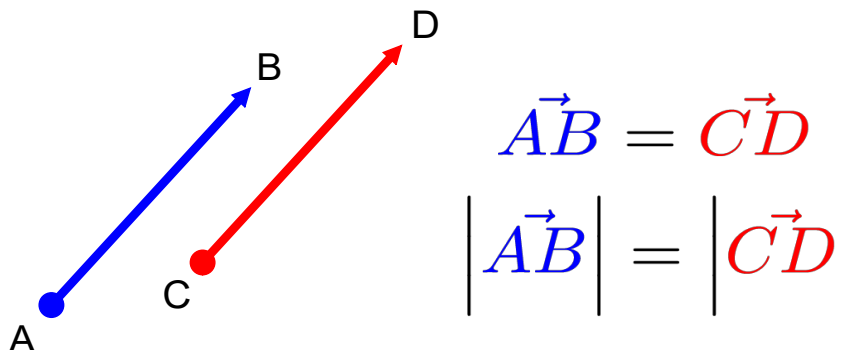
The size, or magnitude, of a vector is a scalar quantity, and is written as

$$|\vec{AB}|$$

## Equal Vectors

Two vectors are equal (or equivalent) if and only if:

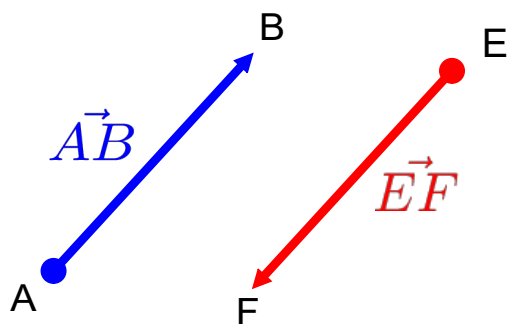
- they are parallel to each other, and
- they have the same direction, and
- they have the same magnitude.



Note: The starting point does not matter for equality.

### Opposite Vectors

Vectors which are parallel and have the same magnitude, but point in opposite directions.



same magnitude

$$|\vec{AB}| = |\vec{EF}|$$

$$\vec{AB} = -\vec{EF}$$

same magnitude,  
opposite directions

### Assigned Work

p.279 # 4 - 7, 9, 11

p.279 #4

