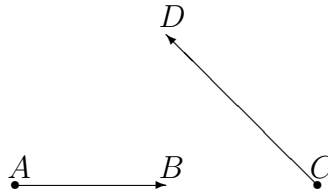


## Hw 1

1. Draw the following vectors,

- $\vec{BA}$ ,
- $2\vec{CD} - \vec{AB}$
- $\vec{AB} + \vec{CD}$ .

where the vectors  $\vec{AB}$  and  $\vec{CD}$  are given by the following picture.



2. Is it always true that  $\vec{a} + \vec{b} = \vec{b} + \vec{a}$ ? Why?
3. Is it always true that  $\vec{a} - \vec{b} = \vec{b} - \vec{a}$ ? Why?
4. Assume you have fixed a 3D-coordinate system, and you have two vectors given by  $\vec{a} = (1, 2, 0)$  and  $\vec{b} = (3, 4, 5)$ ? What are the vectors  $\vec{a} + \vec{b}$ ,  $4\vec{a} - 3\vec{b}$ ? What is the length of  $\vec{b} - 2\vec{a}$ ?
5. Find a unit vector parallel to the vector
  - $(1, 2, 3)$
  - $(2, 3, 4)$
  - $(3, 4, 5)$