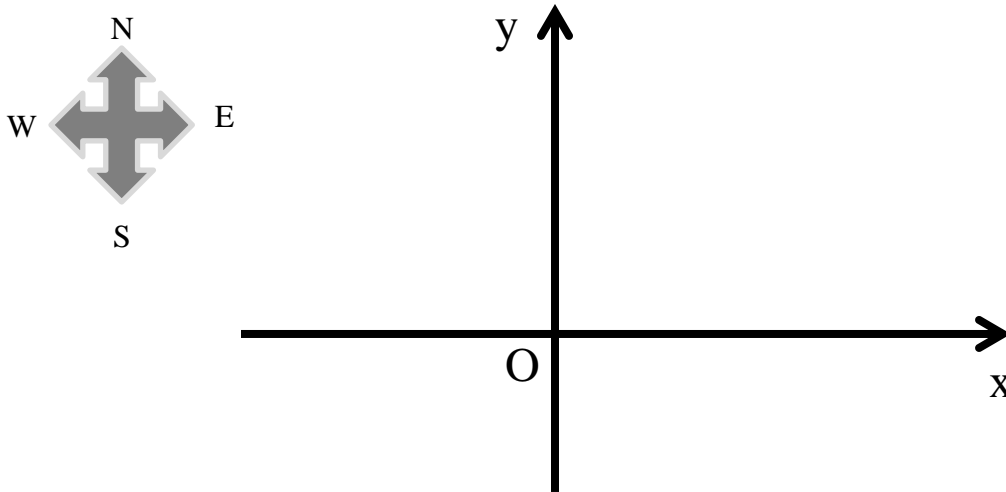


Homework 1

- 1) [40 Points] Suppose that displacement Δx (in meters), for an object moving along the x axis, as a function of time t (in seconds) is given as:

$$\Delta x = a t + b t^2$$

- a) What are the SI units of the real coefficients a and b ?
- b) What are the velocity and acceleration of the object at time $t = 1 \text{ s}$?
- 2) [60 Points] Suppose that a car moves up north 100 km for 2 h and then turns towards east and travels in this direction 60 km for 1 h.
- a. Draw in the following diagram the displacement vector of the car?



- b. Determine the average velocity and the speed of the car.
- c. Answer the question (b), if in the second part of the motion the driver would have traveled the same distance (60 km) for the same time (1 h), but toward south.