

Relative Motion

Relative Motion

- All motion, and even time, is relative to an observer.
- A person that is walking forward at 4km/h on a ship will be seen as moving faster by an observer on the shore.
- This occurs because the speed of the ship is added to the person's speed when the situation is viewed relative to the shore.
- If the ship and person are moving in different directions then a situation might occur when the person will think himself moving forward, while actually moving backwards.

Example 1

- The water current in a river moves relative to the land with a velocity 10 m/s West and a boat is traveling across the river relative to the current with a velocity 20 m/s North. What is the velocity of the boat relative to the land?

Example 2

- An airplane is flying with a constant velocity of 200km/h at 50°W of S , a wind of 15km/h at 4°W of N is blowing and changing the plane's speed. What speed will the control tower, on the ground, see the plane moving at?
