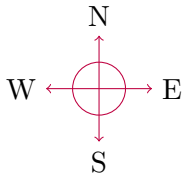
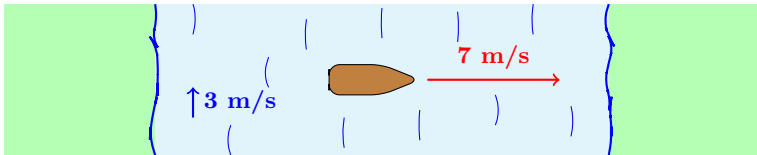


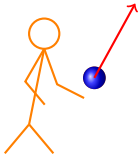
**Ex #1** You hike 20 meters east and then 40 meters north. What is your displacement (magnitude and direction)?



**Ex #2** You row east across a river at a speed of  $7 \text{ m/s}$ . The river flows north at a speed of  $3 \text{ m/s}$ . From the perspective of someone standing on the shore, what is your velocity (magnitude and direction)?



**Ex #3** A ball is thrown with an initial resultant velocity of 12.5 m/s at angle  $53^\circ$  above horizontal. Calculate the  $x$ - and  $y$ - components of the ball's initial velocity.



**Ex #4** An airplane comes in for a landing at a speed of  $67 \text{ m/s}$ . Its angle is  $15^\circ$  below horizontal. Calculate the  $x$ - and  $y$ - components of the airplane's velocity.

