Applications of Vectors

Throwing a discus/javelin

hockey puck shot off the boards

soccer dynamics

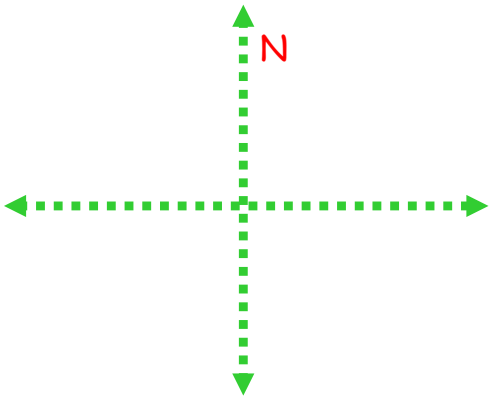
Airplane course

Playing pool

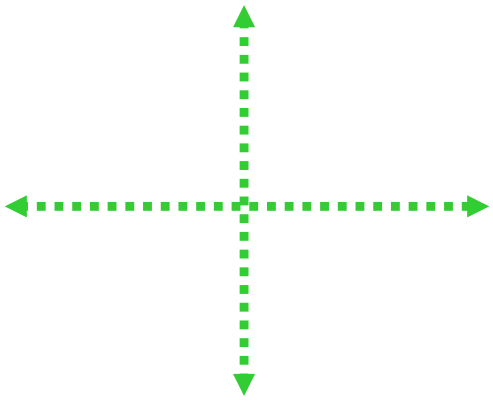
Speed a baseball player must go to intercept the fly ball

Bearings vs. Direction Angles

Bearing is an **angle** that is measured clockwise from the north direction

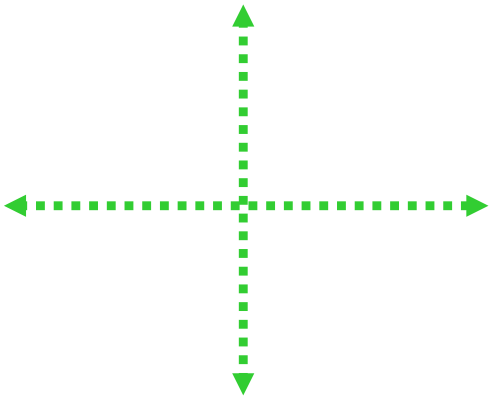


A direction **angle** is measured from t positive x-axis.



You have to convert from bearings to direction angles 1st!!

An airplane is flying at a bearing of 170^{o} at 460 mph. Find the component form of the velocity of the plane.



The wind is blowing with the bearing of 200^{o} at 80 mph. Find the component form of the velocity of the wind.

Calculating the effect of Wind velocity

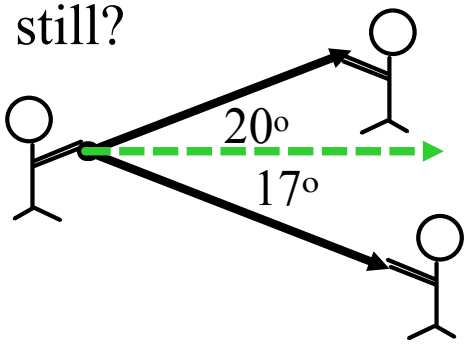
An airplane is flying at a bearing of 350^{o} at 420 mph.
A wind is blowing with a bearing of 180^{o} at 75 mph.

Find the component form of the airplane and wind.

Find the actual direction and speed of the airplane.

A ship is heading due south at 15mph. A current is flowing southeast at 3 mph. Find the actual direction and speed of the ship.

Kaitlyn and her brother Kaedon are playing tug of war with their dad. If each child pulls with a force of 22 lbs and 25 lbs at the angles shown, how hard is their dad pulling to hold them still?



Three forces with magnitudes of 100 lb., 80 lbs., and 75 lbs. act on an object at angles of 60^o, 120^o, and -30^o respectively. Find the resultant.