Glossary

air resistance
a frictional force that slows the motion of objects as they travel through the air; when solving basic physics problems, air resistance is assumed to be zero

analytical method
the method of determining the magnitude and direction of a resultant vector using the Pythagorean theorem and trigonometric identities

classical relativity
the study of relative velocities in situations where speeds are less than about 1% of the speed of light—that is, less than 3000 km/s

commutative
refers to the interchangeability of order in a function; vector addition is commutative because the order in which vectors are added together does not affect the final sum

component (of a 2-d vector)
a piece of a vector that points in either the vertical or the horizontal direction; every 2-d vector can be expressed as a sum of two vertical and horizontal vector components

direction (of a vector)
the orientation of a vector in space

head (of a vector)
the end point of a vector; the location of the tip of the vector's arrowhead; also referred to as the "tip"

head-to-tail method
a method of adding vectors in which the tail of each vector is placed at the head of the previous vector

kinematics
the study of motion without regard to mass or force

magnitude (of a vector)
the length or size of a vector; magnitude is a scalar quantity

motion
displacement of an object as a function of time

projectile
an object that travels through the air and experiences only acceleration due to gravity

projectile motion
the motion of an object that is subject only to the acceleration of gravity

range
the maximum horizontal distance that a projectile travels

relative velocity
the velocity of an object as observed from a particular reference frame

relativity
the study of how different observers moving relative to each other measure the same phenomenon

resultant
the sum of two or more vectors

resultant vector
the vector sum of two or more vectors

scalar
a quantity with magnitude but no direction

tail
the start point of a vector; opposite to the head or tip of the arrow

trajectory
the path of a projectile through the air

vector
a quantity that has both magnitude and direction; an arrow used to represent quantities with both magnitude and direction

vector addition
the rules that apply to adding vectors together

velocity
speed in a given direction