

Chapter 3-1: Vectors

Text:Chapter 3

Think and Explain:

Think and Solve:

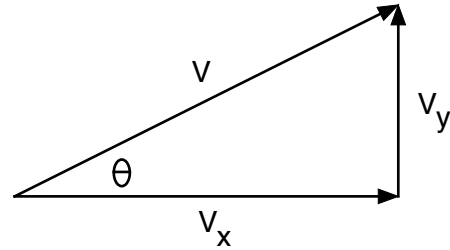
Vocabulary:

vector, scalar, resultant vector, component vector, horizontal component of velocity, vertical component of velocity

Equations:

$$v^2 = v_x^2 + v_y^2 \quad v_x = v \cos \theta \quad v_y = v \sin \theta$$

Constants: $g = \pm 10 \text{ m/s}^2$

**Key Objectives:***Concepts*

- Distinguish between a vector quantity and a scalar quantity.
- Distinguish between a component vector and a resultant vector.
- Correctly give or interpret directions using angles and compass directions.
- Give a vector as either a magnitude and direction or in component form.

Problem Solving

- Add vectors graphically using the tip to tail method.
- Given the magnitude and direction of a vector, find its components.
- Given the components of a vector, find its magnitude.
- Given a magnitude and direction, be able to draw the vector.
- Given the components, be able to draw a vector.
- Find the magnitude of a resultant vector using the Pythagorean Theorem when given two component vectors at right angles to one another.
- Find the components of a vector given its magnitude and direction (angle.)
- Solve vector word problems. (River problems, airplane/wind speed problems.)