

Vector Components, Vector Resolution and Vector Addition

Read from **Lesson 1** of the **Vectors and Motion in Two-Dimensions** chapter at **The Physics Classroom**:

- <http://www.physicsclassroom.com/Class/vectors/u3l1b.html>
- <http://www.physicsclassroom.com/Class/vectors/u3l1c.html>
- <http://www.physicsclassroom.com/Class/vectors/u3l1eb.cfm>

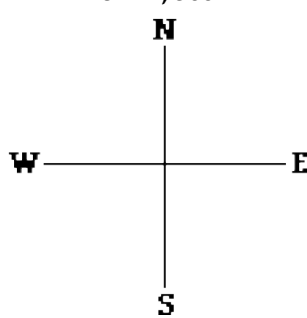
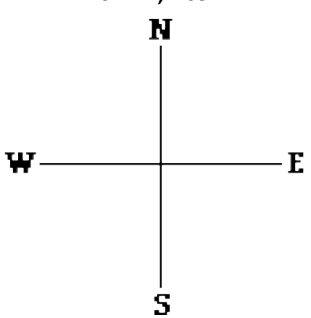
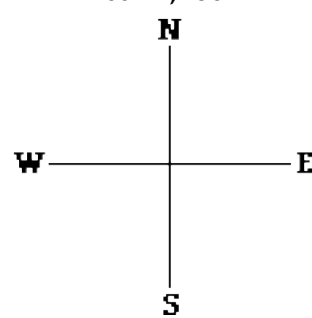
MOP Connection: Vectors and Projectiles: sublevels 3 and 5

Review: The direction of a vector is often expressed as a counter-clockwise (CCW) angle of rotation of that vector from due east (i.e., the horizontal). In such a convention, East is 0°, North is 90°, West is 180° and South is 270°.

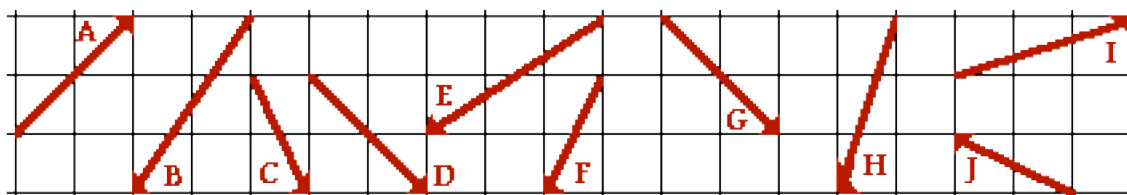
About Vector Components:

A vector directed at 120° CCW has a direction which is a little west and a little more north. Such a vector is said to have a northward and a westward component. A **component** is simply the effect of the vector in a given direction. A hiker with a 120° displacement vector is displaced both northward and westward; there are two separate effects of such a displacement upon the hiker.

- Sketch the given vectors; determine the direction of the two components by circling two directions (N, S, E or W). Finally indicate which component (or effect) is greatest in magnitude.

45 km, 300°	10 km, 265°	200 mi, 150°
		
Components: E W N S	Components: E W N S	Components: E W N S
Greatest magnitude? _____	Greatest magnitude? _____	Greatest magnitude? _____

- Consider the various vectors below. Given that each square is 10 km along its edge, determine the magnitude and direction of the components of these vectors.



Vector	E-W Component (mag. & dirn')	N-S Component (mag. & dirn')
A		
C		
E		
G		
I		

Vector	E-W Component (mag. & dirn')	N-S Component (mag. & dirn')
B		
D		
F		
H		
J		

