Accel Precalc Handout: Geometric Vectors Name _____
Unit #8: Extended Trigonometry
Lesson 5: Sketching Vectors and Operations on Vectors

EQ:

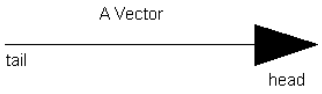
PART I: Geometric Vectors

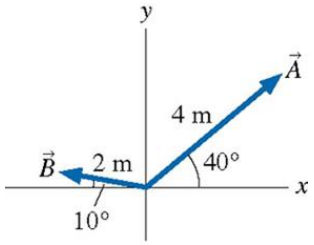
- Scalar --- quantity that describes _____ or _____ only (with or without units). It does not include _____.

Ex. _____

- Vector --- a directed _____ _____ with an _____ head at the end indicating a _____

Ex. _____





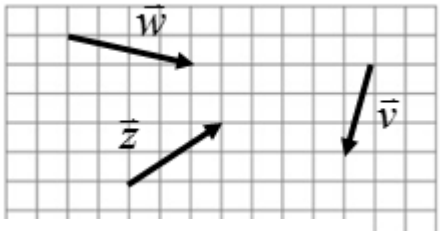
- Magnitude of a Vector --- _____; notation _____

- Equivalent Vectors --- same _____ and _____

- Opposite Vectors --- same _____ opposite _____from initial point

- Scalar Multiplication --- alters the _____ and (_____) _____

Ex. Using the diagram to the right to create each of the following.



a) $3\vec{z}$ b) $-2\vec{w}$ c) $0\vec{v}$

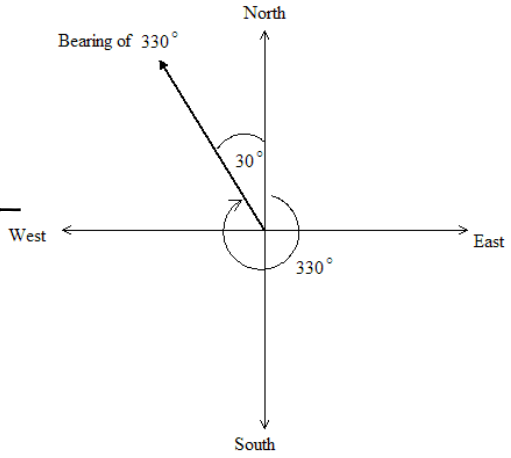


- Compass Bearing of a Vector --- angle measured _____

  or _____ of the _____.

- True Bearing or Heading --- angle measured _____

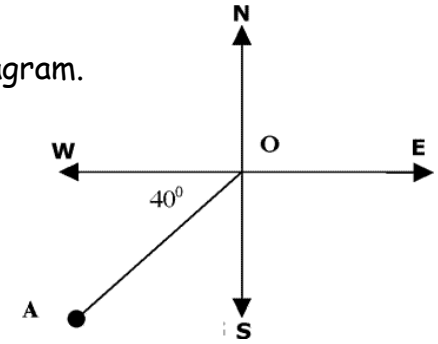
  from due _____



The **compass bearing** of this vector would be _____.

The **true bearing** of this vector would be _____.

Ex. Write down the bearing notations for the given vector in the diagram.

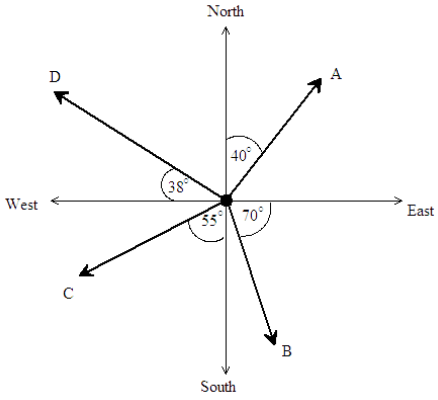


The **compass bearing** of this vector would be _____.

The **true bearing** of this vector would be _____.

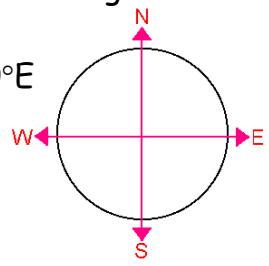
Ex. Write down the compass bearings of the points A, B, C and D in the diagram, using:

A B C D

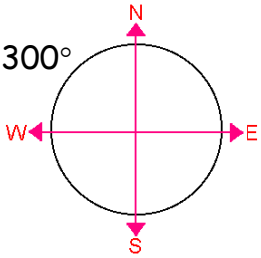


Ex. Sketch a vector having:

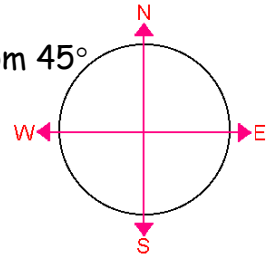
a) bearing S20°E



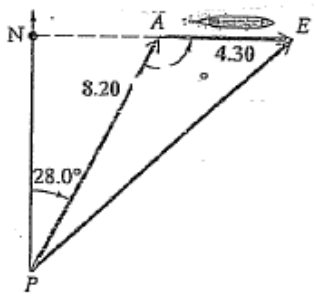
b) heading 300°



c) wind from 45°

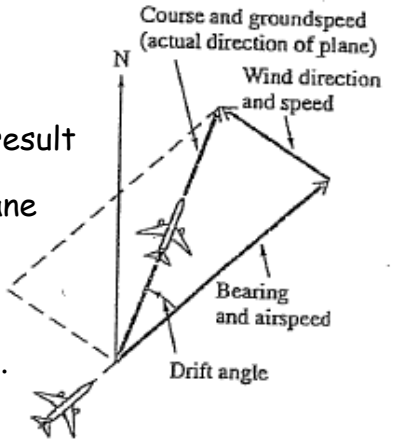


Ex. A ship leaves port on a bearing of 28° and travels 8.2 mi. The ship then turns due east and travels 4.3 mi. How far is the ship from port? What is its bearing from port?

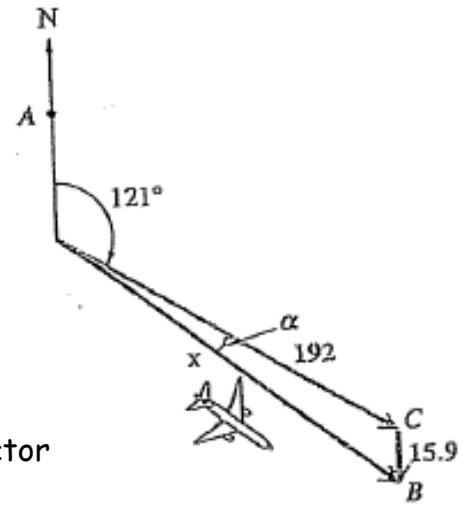


- Airspeed of a plane --- speed relative to the _____

- Groundspeed of a Plane --- speed relative to the _____; a result of _____ and _____ acting on plane



Ex. An airplane with an air speed of 192 mph is flying on a heading of 121°. A north wind is blowing at 15.9 mph. Find the groundspeed and the actual bearing of the plane.



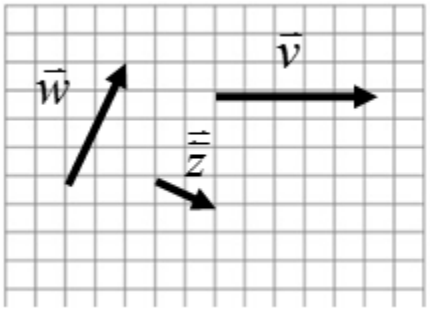
- Resultant (sum) of Two Vectors --- drawn from _____

  point of first vector to _____ point of second vector

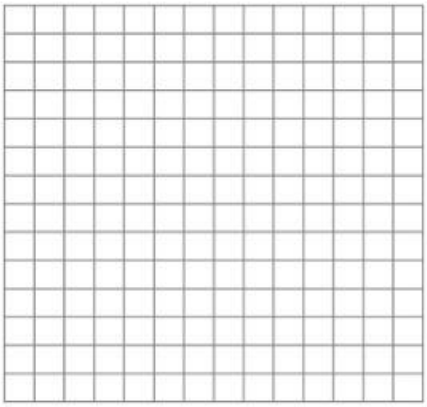
Use the vectors at the right to draw the resultant vectors for the following:

a) $\vec{v}+\vec{w}$

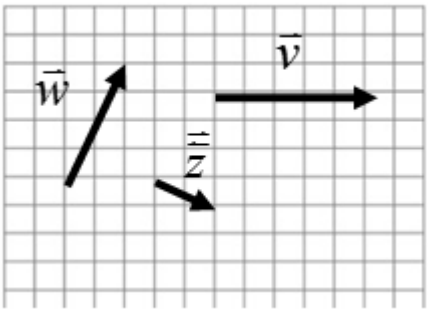
b) $\vec{w}+\vec{v}$



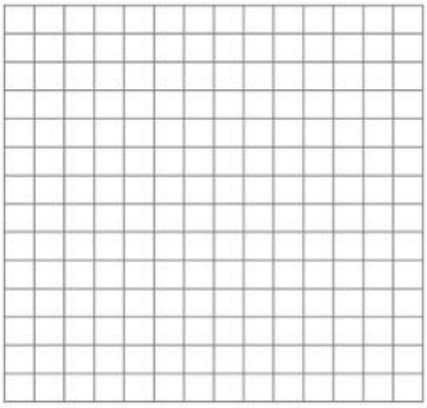
c) $\vec{v} - \vec{w}$



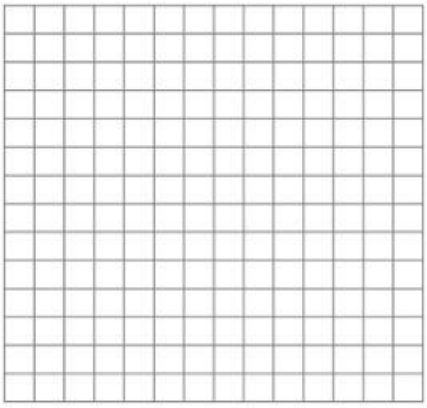
d) $2\vec{w} + \vec{z}$



e) $\vec{w} + (\vec{z} + \vec{v})$



f) $-3\vec{w} + 2\vec{v}$



Assignment: Practice Worksheet #1: Sketching Vectors