Vectors Circuit Pre-Calculus   Name_____   Date_____   Period_____

Directions: Begin in cell #1. Answer the question (show necessary work on this page or attach separate paper). Search for your answer. Label that cell #2 and proceed in this manner until you complete the circuit (get back to the beginning). This is a calculator active assignment.

# _1_ Answer: 91.405, 79.732°	#____ Answer:
Given: $\vec{v} = \langle -3,\ 6 \rangle$; $\vec{u} = \langle 2, -5 \rangle$ Find $\vec{u} + \vec{v}$	The component form of vector $\overline{AB}$ is $\langle -11, 7 \rangle$. Write vector $\overline{AB}$ in linear combination of unit vectors.
#____ Answer: $\langle -22,\ 11 \rangle$	#____ Answer: 196.899, $S16.832°\,E$
3) Given coordinates of points $A\ (\text{-}4\,,\,5)$ and $G\ (-7\,,\,9)$ Find component form of $\overline{GA}$	Three forces, 120 pounds, 90 pounds and 50 pounds act on the same object at angles of $50°$, $150°$ and $-70°$ respectively, with the positive x-axis. Find the direction and magnitude of the resultant of these forces.
#____ Answer: 5	#____ Answer: $\langle -1,\ \ 1 \rangle$
Given vectors $\vec{u} = \langle -3, 4 \rangle$ and $\vec{v} = \langle 5,\ -2 \rangle$. Sketch $\ \vec{u}\,,\,\vec{v}\,$, and $\ \vec{u} + \vec{v}$	Given: $\vec{v} = \langle -3,\ 6 \rangle$; $\vec{w} = \langle 7, -3 \rangle$ Find $\dfrac{1}{3}\vec{v} - 3\vec{w}$

#____   Answer: $\overrightarrow{AB} = -11i + 7j$

A small airplane traveling at 220 mph has a compass heading of $220°$. The wind at the same altitude has a velocity of 45 mph and a heading of $72°$ east of north. Find the resultant velocity of the plane and the true bearing.

#____   Answer: 56.65

An airplane traveling at 270 mph is heading $S21°E$. The wind at this altitude has a uniform velocity of 75 mph and a heading of $N32°W$. Find the resultant speed of the plane and the true bearing.

#____   Answer: $\langle 3, \quad -4 \rangle$

Given coordinates of points A $(-4, 5)$ and G $(-7, 9)$

Find $\left\| \overrightarrow{GA} \right\|$

#____   Answer: $183.395 \; mph. \quad S32.529°W$

A box weighing 110 pounds is sitting on a ramp at a $31°$ angle from the horizontal. Find the magnitude of the force keeping the box from sliding down the ramp.