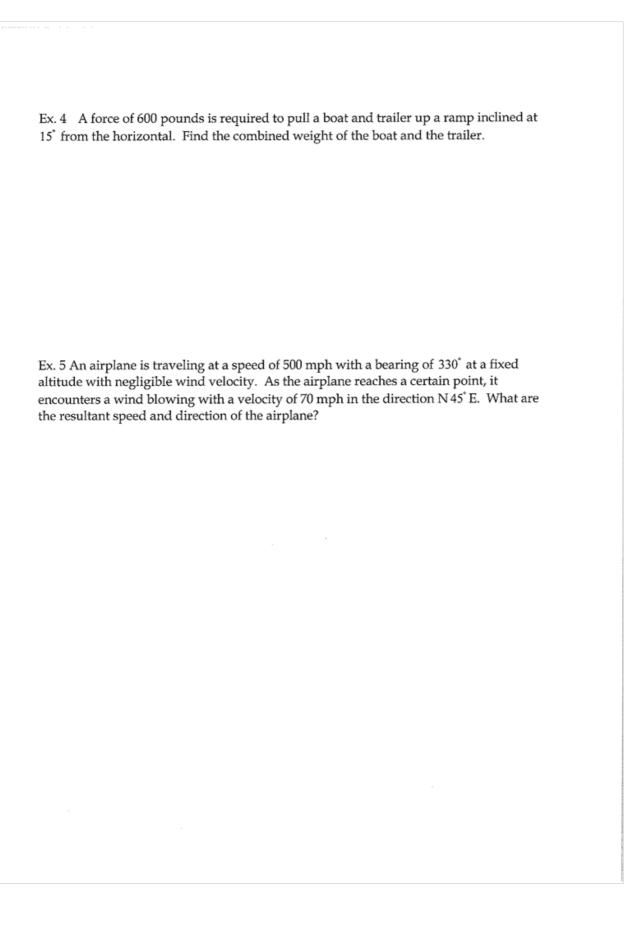
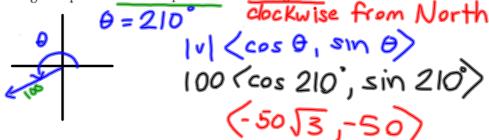
Name
Honors Pre Calculus Solving word problems using vectors
Ex. 1 Find the component form of the vector that represents the velocity of an airplane descending at a speed of 100 miles per hour at a bearing of 240° .
Ex. 2 A motorboat traveling across a wide river is headed 50 degrees north of west at a constant speed of 10 miles per hour. The river current is 7 miles per hour due west. How far west does the motorboat travel in three minutes? How far north does it travel in three minutes?
Ex. 3 A plane traveling at 400 mph is flying with a bearing of 40° . There is a wind speed of 50 mph from the South. If no correction is made for the wind, what are the final bearing and ground speed of the plane?



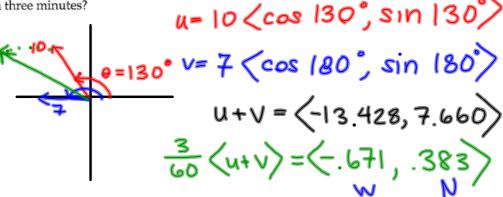
Name_____

Honors Pre Calculus Solving word problems using vectors

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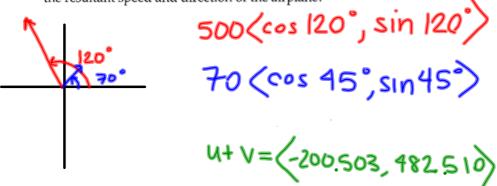


Ex. 3 A plane traveling at 400 mph is flying with a bearing of 40°. There is a wind speed of 50 mph from the South. If no correction is made for the wind, what are the final bearing and ground speed of the plane?

Ex. 4 A force of 600 pounds is required to pull a boat and trailer up a ramp inclined at 15° from the horizontal. Find the combined weight of the boat and the trailer.

$$\overrightarrow{X}\overrightarrow{y}$$
 = weight of boat
 $\overrightarrow{X}\overrightarrow{z}$ = force against ramp
 $\overrightarrow{Y}\overrightarrow{z}$ = 600 lbs
 $\overrightarrow{x}\overrightarrow{y}$ = 2,318.222 lbs

Ex. 5 An airplane is traveling at a speed of 500 mph with a bearing of 330° at a fixed altitude with negligible wind velocity. As the airplane reaches a certain point, it encounters a wind blowing with a velocity of 70 mph in the direction N 45° E. What are the resultant speed and direction of the airplane?



Speed: 522.511mph

bearing: 337. 435°

Name
Pd
Honors Pre-Calculus
Solving Word Problems Using Vectors
1. A jet ski is travelling 75 degrees North of East at a constant speed of 43 miles per hour. The water is moving at a rate of 12 miles per hour due East. Represent the movement of the jet ski considering the wind. How far has the jet ski moved horizontally and vertically after 12 minutes?
2. A plane is travelling at 350 miles per hour with a bearing of 50 degrees. There is a wind speed of a breezy 24 miles per hour due West. With no correction for the wind, what are the final bearing and ground speed of the plane?
3. Find the component form of the vector which represents the velocity of an airplane at a speed of 240 miles per hour at a bearing of 300 degrees. How far has the plane moved after 10 minutes?
4. A force of 425 pounds is required to pull a dead car up a ramp inclined at 13 degrees with the horizontal. Find the weight of the car.
5. An airplane is travelling at a speed of 400 miles per hour with a bearing of 200 degrees. The plane encounters a wine blowing with a velocity of 60 miles per hour 40 degrees South of west. What are the resultant speed and bearing of the airplane?