Name_____

Date_____

Advanced Algebra- Assignment #13

Unit 9 –Vectors and Bearings:

Notes:

Law of cosines is $c^2 = a^2+b^2-2abcosC$

Law of sines is $\frac{SinA}{a} = \frac{Sin\ B}{b} = \frac{Sin\ C}{c}$

Because of wind a plane's ground speed, its actual speed relative to the ground, might differ from its air speed, it speed in still air. A plane's true course, the direction in which it actually travels, might differ from its heading, the direction in which it is pointed.

Wind- In describing wind, it is customary to give the direction from which it blows. **Thus the velocity vector of a WEST wind points EAST.**

<u>For all problems, draw an accurate triangle. Your picture does NOT need to be to scale. However all angles should be correct.</u>

1) A plane is traveling at 400 mph with a bearing of 40 degrees. There is a 50mph wind from the south. If there is no correction for the wind, what are the final bearing and the ground speed of the plane?

2) A plane's bearing is 160 degrees with an air speed of 350 mph. If a west wind is blowing at 20mph, what are the planes ground speed and bearing?

3) A plane with a bearing of 50 degrees has an air speed of 400 mph. If a 35 mph wind is blowing from the north, what are the planes ground speed and bearing?

4) A plane has a bearing of 130 degrees and an air speed of 350mph. If a 35mph wind is blowing from the north, what are the planes ground speed and bearing?

5) A plane leaves from Orlando, Florida heading 975 miles due north toward Cleveland, Ohio. The plane flies at 250 mph, and there is a 25 mph wind blowing from the west.

a) Where is the plane after it has traveled 975 miles north?

b) How far did the plane actually travel?

c) How fast did the plane actually travel?

d) What was the plane's actual bearing?