Math 42 Additional Homework 3

Mon Jun 12, 2017
Due Date to be announced in lecture

NAME YOU ASKED TO BE CALLED IN CLASS: _____

[1] A car travels along an north-south road. A house sits off the side of the road.
Originally, the house is on a bearing of 253° from the car.
After the car has travelled 102 feet, the house is then on a bearing of 302° from the car.
Find the original and final distance between the car and the house.

[2] A flagpole is mounted vertically (to the Earth) along a sloped road which has an angle of inclination of 16°.
A 68 foot cable connects the top of the flagpole to a point on the ground 11 feet uphill from the base of the flagpole.
Find the height of the flagpole.

[3] A mass of 48 kg is suspended motionless in mid air by two forces with direction angles 60° and 135° respectively.
Find the magnitudes of the forces.

[4] A warehouse worker is pulling a pallet across the floor using a strap.
The strap is 10 feet long and the worker's hand is 3 feet above the ground.
Find the work done if the worker exerts a force of 40 pounds along the strap and pulls the pallet 20 feet.

[5] A 24 foot flagpole is mounted vertically (to the Earth) along a sloped road which has an angle of inclination of 8°.
A sewer cover is located in the road, 6 feet downhill from the base of the flagpole.
Find the angle of depression from the top of the flagpole to the sewer cover.

[6] You wish to reach a point 94 miles on a bearing of $S\,84^\circ\,W$ from home.
Due to weather conditions, you instead travel 98 miles on a bearing of $N\,87^\circ\,W$.
How far, and on what bearing, must you now travel to reach your destination ?
Use vectors to solve the problem. Write bearing in the same format used in the question.