#2 Vectors and Trigonometry Review Post-class

Due: 11:00am on Friday, August 24, 2012

Note: You will receive no credit for late submissions. To learn more, read your instructor's Grading Policy

Problem 1.78

A ship leaves the island of Guam and sails a distance 300 km at an angle 50.0° north of west.

Part A

In which direction must it now head so that its resultant displacement will be 100 km directly east of Guam? (Express your answer as an angle measured south of east)

ANSWER:

θ = 38.1 ° south of east

Correct

Part B

How far must it sail so that its resultant displacement will be 100 km directly east of Guam?

ANSWER:

372 km

All attempts used; correct answer displayed

Problem 1.81

While following a treasure map, you start at an old oak tree. You first walk 825 m directly south, then turn and walk 1.25 km at 30.0 ° west of north, and finally walk 1.00 km at 40.0 ° north of east, where you find the treasure: a biography of Isaac Newton!

Part A

To return to the old oak tree, in what direction should you head ? Use components to solve this problem.

ANSWER:

θ = 8.90 ° west of south

Correct

Part B

To return to the old oak tree, how far will you walk? Use components to solve this problem.

ANSWER:

D = 911 m

Correct

Problem 1.69

A spelunker is surveying a cave. She follows a passage that takes her a distance 174 m straight west, then a distance 220 m in a direction 45.0° east of south, then a distance 276 m at 30.0° east of north. After a fourth unmeasured displacement she finds herself back where she started.

Part A

Use the method of components to determine the magnitude of the fourth displacement.

ANSWER:

146 m

Correct

Part B

Use the method of components to determine the direction of the fourth displacement.

ANSWER:

34.9 ° South of West

Correct

Score Summary:

Your score on this assignment is 76.8%.
You received 23.05 out of a possible total of 30 points.