Navigation Test

Name:

Use the provided chart of Anegada. Utilize that 1 minute (1/60 of a degree) = 1 nautical mile (nm). MODIFICATIONS: Buoy A is at (N 18° 42.8' , W 64° 23.7') and Buoy B is at (N 18° 43.1' , W 64° 23.1')

5 pts Is the latitude North or South? NORTH

Is the longitude East or West? WEST

10 pts What are the range of values for

Latitude: [18° 42.7', 18° 44.4']

Longitude: [64° 22.5', 64° 25.1']

10 pts What are the coordinates for the "sunken barge?"

Latitude: N 18° 44.0'

Longitude: W 64° 24.9'

10 pts What are the coordinates of the "Anegada Reef House?"

Latitude: N 18° 43.5'

Longitude: W 64° 22.9'

There is a water current of 5 nm/hr to the South in the area of 64° 25.1' to 64° 24'. There is a second water current of 2.5 nm/hr to the SouthEast in the area of 64° 24' to 64° 23' .

!! You are on a boat that travels at 15 nm/hr !!

HINT: There are several ways you can solve the following problems. One method uses: $\sin^2\theta + \cos^2\theta = 1$ for all θ. Another uses the geometry of triangles. Another uses the Quadratic equation. You can also use the chart by drawing in the vectors. It is up to you how you solve them.

20 pts You travel from N 18° 43.0' , W 64° 25.0' and steer your boat at 70.5° (ENE) for 5 minutes.

What direction are you really heading (use "compass" directions - North = 0° and East = 90°)?

Bearing: 90° = Due East

Where do you stop?

1.18 nm East = N18° 43.0' W 64° 23.82'.

25 pts You now travel from Buoy A to Buoy B.

What direction must you travel to go directly there (use "compass" directions)?

Bearing: 54.34° (NE)

How long does it take you to travel that distance?

2.6 minutes.

How far is it?

0.67 nm

35 pts You are at the "sunken barge" (N 18° 44.0' , W 64° 24.9') and want to go to Buoy A. What direction must you travel to go directly there (use "compass" directions)?

Bearing: 121.4° (SE) until N 18° 43.1' , W 64° 24.0' and then 135°.

How long does it take you to travel that distance?

Under the first bearing, 3.74 minutes. Under second bearing, 1.26 minutes = total time of 5 minutes.

How far is it?

1.55 nm

BONUS

15 pts You see the "Pomato Point Restaurant" at 290° (approximately NNW) and the "Neptune Treasure" at 44° (approximately NE). Where are you located?

On Jake's Shoal.