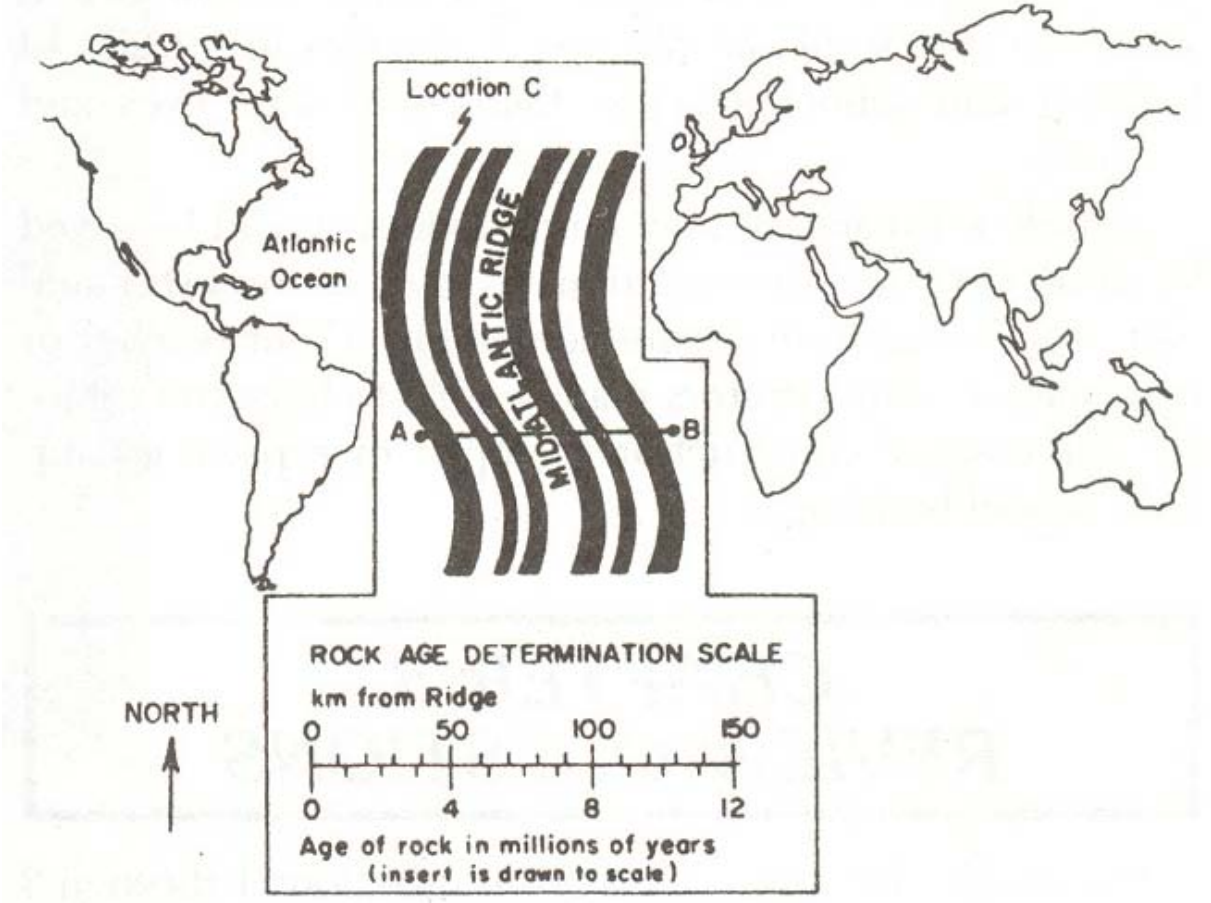
MiSP Plate Tectonics Worksheet #3 – Assessment L3

Name _____ Date_____

L1-3

Base your answers to questions 1 – 3 on the diagram below which shows an enlargement of the mid-Atlantic ridge and surrounding area in its position between the continents. Magnetic polarity bands are shown. You will need a ruler and calculator for question 3.



1. What would be the age in millions of years of an ocean floor rock found 20 kilometers west of the ocean ridge?

_____ million years

2. _____ *Multiple choice* - From point A to point B, what happens to the relative age of the rocks?

A. continuously decrease from A to B
B. continuously increase from A to B
C. decreases from A to the mid-Atlantic ridge and then increases to B
D. increases from A to the mid-Atlantic ridge and then decreases to B

3. What is the average rate of sea floor movement (centimeters per year or cm/year) from the mid-Atlantic ridge to point B. Remember that there are 100,000 cm in a km and to find the rate per year, you will have to multiply the millions of years by 1,000,000. Show all work.

Rate from mid-Atlantic ridge to point B = _____ cm/year

4. The Hawaiian Islands vary in age from Maui (1 million years old) to Kauai (5 million years old). How does the theory of plate tectonics explain the different ages of the Hawaiian Islands?

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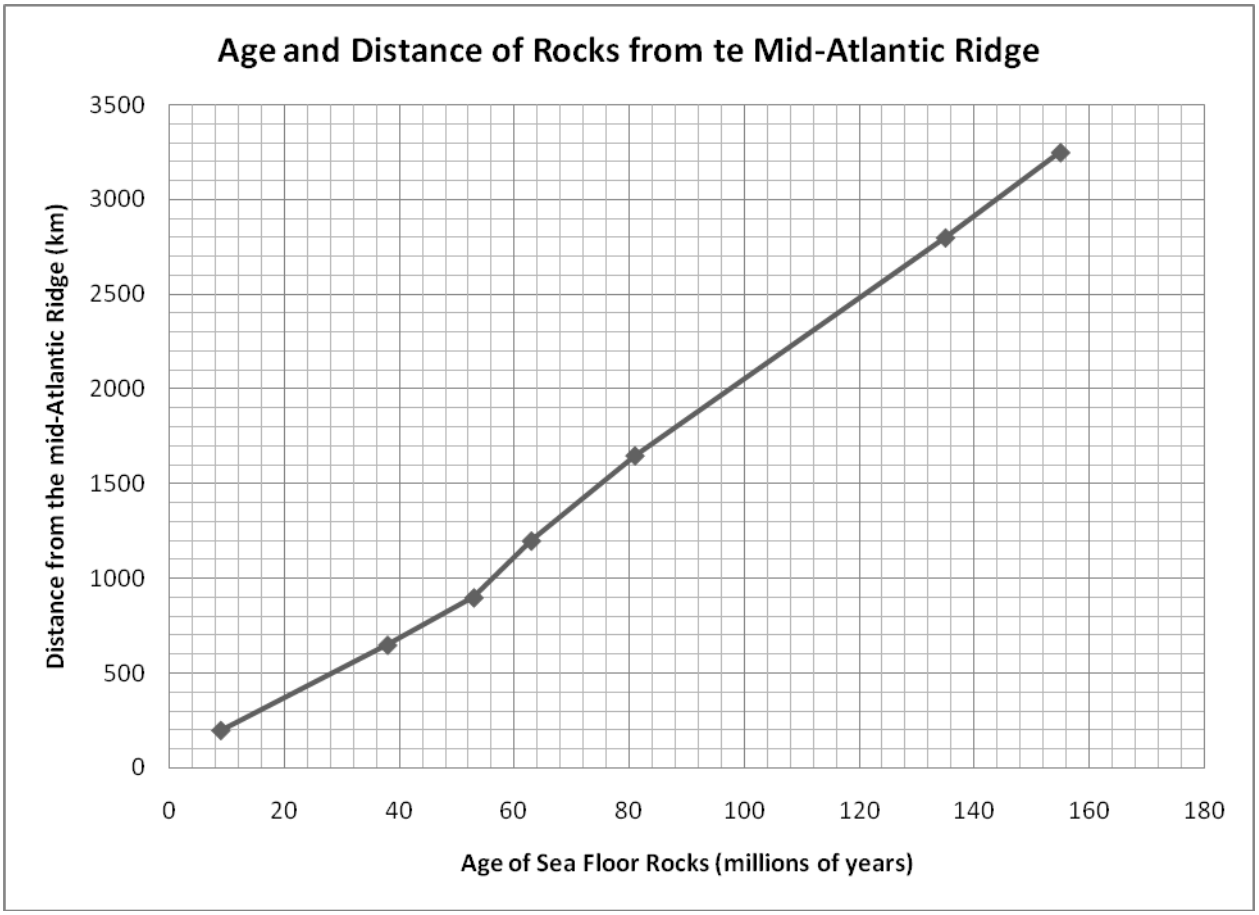
5 (L1) 5-6 (L2) 5-8 (L3) This chart is data from the Plate Tectonics unit's Worksheet #1 – SEA FLOOR SPREADING. It lists the age and distance of rocks from the mid-Atlantic ridge. The data is graphed on the next page.

Age of sea-floor (millions of years)	Actual Distance (km)
9	200
38	650
53	900
63	1,200
81	1,650
135	2,800
155	3,250



5. Using the graph, at what distance from the mid-Atlantic Ridge would rocks be found that are –

120 million years old? _____

160 million years old? _____

L2-3

6a. Draw a best fit line through (0, 0).

6b. The unit rate of change (slope) of a best fit line through (0, 0), is **+21 km/1 million years**.

Why is the unit rate of change a positive (+) number?

_____

_____

6c. A best fit line was used to find the unit rate of change (slope). Look at the line segment connecting 53 and 63 millions years [(53, 900) and (63, 1,200) (*millions of years, km*)]. If the unit rate of change was calculated for that segment, would it be greater than or less than the unit rate of change of the best fit line. Expain.

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L3

7.The y intercept for the best fit line on the graph is 0. Using the unit rate of change (slope) from #6b and the y intercept, what is the formula for the best fit line?

8. Using the formula from #7, how many km from the mid-Atlantic ridge would there be rocks that are 195 million years old? Show work.

Distance from mid-Atlantic ridge for rocks 195 million years old: _____