

Chapter 12

Use with Section 1

ENRICHMENT

● The Seafloor

Finding Ocean Depth

Use the information, table, and graph to answer the questions.

Oceanographers know, with sonar, how fast sound waves travel in water. Thus, they know how far the waves travel during their round trip to the surface. Half this distance is the depth of the ocean at that spot. The formula to find the ocean floor depth is

$$D = \frac{1}{2} t \times v$$

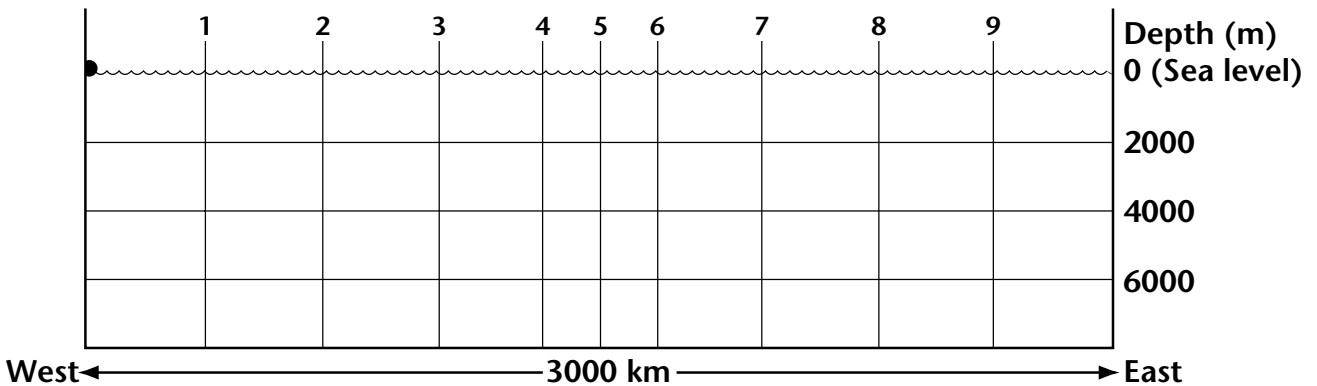
In the formula, D stands for depth, t for time between sending and receiving, and v for the

velocity or speed of sound in water. The speed of sound in water is 1454 meters per second.

The table below gives you some sonar sounding data. Calculate the ocean floor depth for each sounding. Then plot these depths on the graph below. Smoothly connect the depth points and you will have a cross-sectional map of the South Atlantic Ocean floor. (Note: These data are rounded approximations.)

Station	Time for signal to return (s)	Depth (m)	Station	Time for signal to return (s)	Depth (m)
1	6.0				
2	5.2		6	2.4	
3	4.0		7	4.0	
4	2.4		8	5.2	
5	3.2		9	6.0	

Station



1. From what point do oceanographers measure depth? _____
2. At which station(s) is the ocean deepest? _____
3. At which station(s) is the ocean most shallow? _____
4. What large ocean floor feature is evident in the cross-sectional map? _____