7.1 Exercises

DATA **Freshwater** **The table shows the pressures at various depths of freshwater. In Exercises 1–4, use the table.** *(See Examples 1 and 2.)*

1. Does the table relating depth and pressure represent a linear pattern? Explain your reasoning.

2. Use a spreadsheet to graph the data. Is the graph linear?

3. How much does the pressure increase for every foot of depth? Explain your reasoning.

4. Write a formula that relates the depth in feet to the pressure in pounds per square inch.
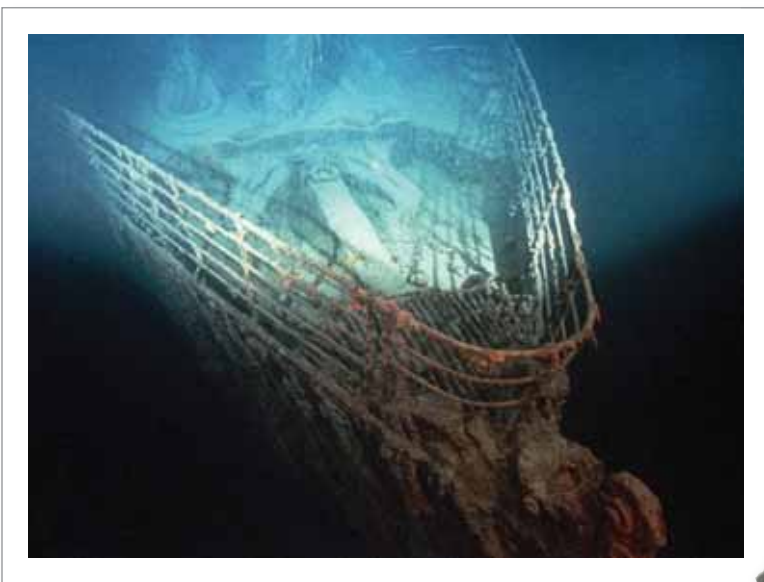
Depth (feet)	Pressure (pounds per square inch)
0	14.70
10	19.03
20	23.36
30	27.69
40	32.02
50	36.35
60	40.68
70	45.01
80	49.34
90	53.67
100	58.00

DATA **Seawater** **For seawater, depth and pressure are related as follows.**

Pressure in pounds per square inch = 0.445(depth in feet) + 14.7

In Exercises 5–8, use this formula. *(See Examples 1 and 2.)*

5. Use a spreadsheet to make a table for the formula. Then graph the data and verify that the points on the graph lie on a line.

6. The recreational diving limit for a scuba diver is 130 feet. Find the pressure at this depth.

7. The wreck of the *Lusitania* lies about 300 feet beneath the Celtic Sea. Find the pressure at this depth.

8. The wreck of the *Titanic* lies about 12,500 feet beneath the Atlantic Ocean. Find the pressure at this depth.

The stern of the *Titanic*, pictured above, was crushed by water pressure as it sank to the bottom of the ocean.