



EXAMPLE 2 Recognizing a Quadratic Pattern

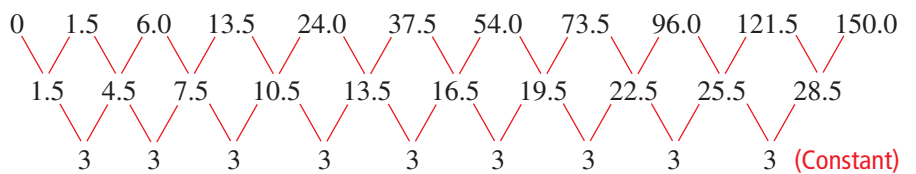
The table shows the numbers of days an offshore oil well has been leaking and the diameters (in miles) of the oil spill. (a) Describe the pattern of the numbers of days. (b) Use a spreadsheet to graph the data and describe the graph.

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|----------------------|---|-----|-----|------|------|------|------|------|------|-------|-------|
| Diameter (mi) | 0 | 0.5 | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 |
| Days | 0 | 1.5 | 6.0 | 13.5 | 24.0 | 37.5 | 54.0 | 73.5 | 96.0 | 121.5 | 150.0 |

The Institute for Marine Mammal Studies in Gulfport, Mississippi, reported that a large number of sea turtles were found dead along the Mississippi coast following the Deepwater Horizon oil spill of 2010.

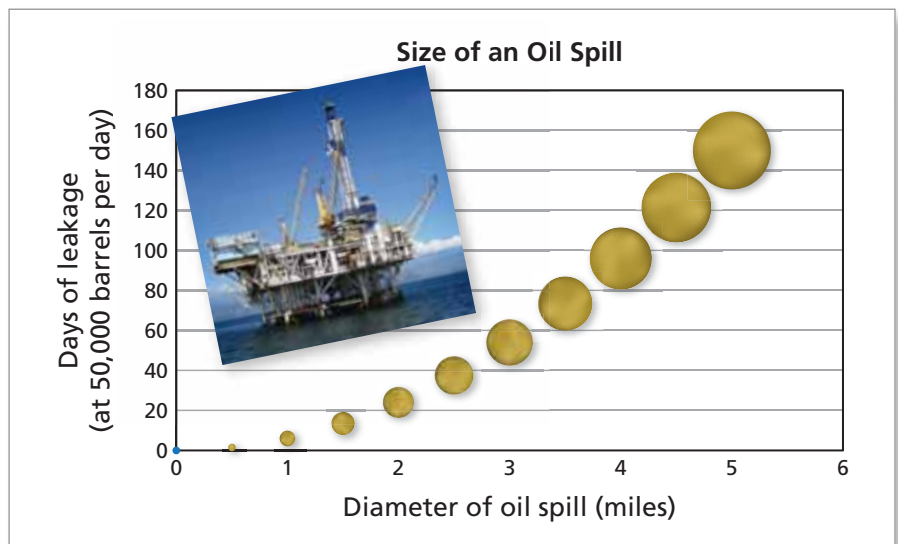
SOLUTION

a. One way is to find the second differences of the numbers of days.



Because the second differences are constant, the pattern is quadratic.

b. The graph is a curve that looks something like exponential growth. However, it is not an exponential curve. In mathematics, this curve is called *parabolic*.



✓ Checkpoint

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Use a spreadsheet to make various graphs, including a scatter plot and a column graph, of the data in Example 1. Which type of graph do you think best shows the data? Explain your reasoning.