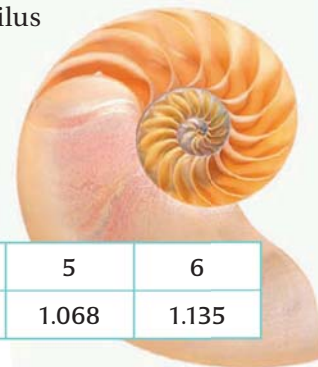


24. **NAUTILUS** A chambered nautilus is a marine animal that lives in the outermost chamber of its shell. When the nautilus outgrows a chamber, it adds a new, larger chamber to its shell. The table shows the volumes (in cubic centimeters) of consecutive chambers of a nautilus. Tell whether the data can be modeled by a *linear function*, an *exponential function*, or a *quadratic function*. Then write an equation for the function.



Chamber	1	2	3	4	5	6
Volume (cm ³)	0.837	0.889	0.945	1.005	1.068	1.135

TEXAS @HomeTutor for problem solving help at classzone.com

25. **MULTIPLE REPRESENTATIONS** Fold a rectangular piece of paper in half. Open the paper and record the number of folds and the number of sections created. Repeat by increasing the number of folds by 1 fold each time.

- a. **Making a Table** Copy and complete the table.

Folds	1	2	3	4	5
Sections	?	?	?	?	?

- b. **Drawing a Graph** Graph the data in part (a). Use the graph and the table to tell whether the data can be modeled by a *linear function*, an *exponential function*, or a *quadratic function*.
- c. **Writing a Model** Write an equation for the function that models the data. Then find the number of sections that are created by 7 folds.

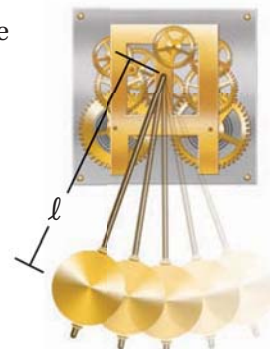
26. **TAKS REASONING** The table shows the cost of a custom circular rug for various diameters (in feet). What is the approximate cost of a custom circular rug that has a diameter of 8 feet?

Diameter (ft)	2	3	4	5	6
Cost (dollars)	28.40	63.90	113.60	177.50	255.60

- (A) \$333.70 (B) \$411.80 (C) \$454.40 (D) \$908.80

27. **TAKS REASONING** The time it takes for a clock's pendulum to swing from one side to the other and back again, as shown in the back view of the clock, is called the pendulum's period. The table shows the period t (in seconds) of a pendulum of length l (in feet).

Period, t (sec)	1	2	3	4	5
Length, l (ft)	0.82	3.28	7.38	13.12	20.5



- a. **Model** Tell whether the data can be modeled by a *linear function*, an *exponential function*, or a *quadratic function*. Then write an equation for the function.
- b. **Apply** Find the length of a pendulum that has a period of 0.5 second.
- c. **Analyze** How does decreasing the length of the pendulum by 50% change the period? *Justify* your answer using several examples.