

## PROBLEM SOLVING

### EXAMPLES 1, 2, and 3

on pp. 775–777  
for Exs. 10–13

10. **ECONOMICS** The gross domestic product (GDP) is the total value of goods and services produced by a country in any given year. The table shows the GDP  $y$  (in billions of dollars) of the United States for selected years from 1930 to 2000. In the table,  $x$  represents the number of years since 1930. Use a graphing calculator to find a model for the data.

$x$	0	10	20	30	40	50	60	70
$y$	91.3	101.3	294.3	527.4	1039.7	2795.6	5803.2	9824.6

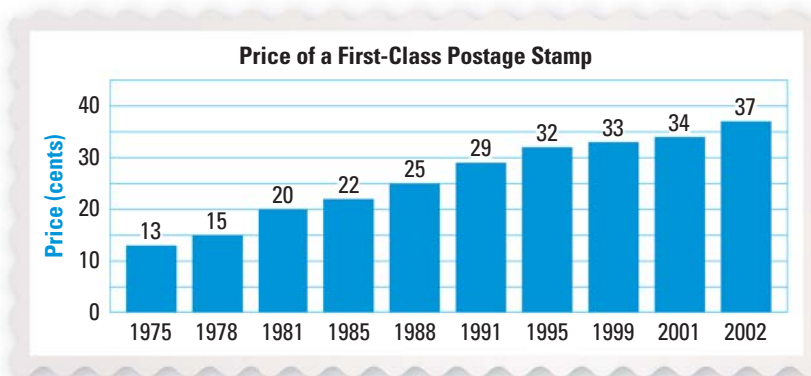
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11. **AGRICULTURE** The table shows the ages  $x$  (in years) and trunk diameters  $y$  (in inches) of several Texas grapefruit trees. Use a graphing calculator to find a model for the data.

$x$	1	4	8	12	16	20	24
$y$	1.1	3.9	6.2	7.6	9.1	11.4	15.2

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12. **MULTIPLE REPRESENTATIONS** The graph below shows the price of a first-class stamp in the United States for selected years from 1975 to 2002. Use a graphing calculator to find a model for the data. Then graph the model and the data in the same coordinate plane.



13. **TAKS REASONING** The manager of a restaurant kept a record of the number  $y$  of customers each hour, where  $x = 3$  represents 3:00 P.M.

$x$	3	4	5	6	7	8	9	10
$y$	9	24	44	56	48	42	38	22

- Make a scatter plot of the data and determine the type of function that best models the data.
- Use a regression feature of a graphing calculator to find a function that models the data.
- Graph the function and data to verify that the function is a good model.
- Do you think the function you found would accurately predict the number of customers at 1 P.M.? *Explain.*