11.5 EXERCISES

SKILL PRACTICE

1. **VOCABULARY** Copy and complete: A function of the form $y = ab^x$ is a(n) __?__ function.

2. **WRITING** *Explain* how you can determine whether a linear function or a quadratic function is a better model for a set of data.

EXAMPLES 1, 2, and 3
on pp. 775–777
for Exs. 3–7

MODELING DATA Use a graphing calculator to find a model for the data. Then graph the model and the data in the same coordinate plane.
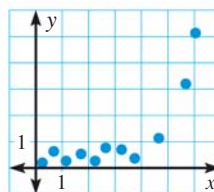
3.

x	1	2	3	4	5	6	7
y	16	17	16	14	11	9	5

4.

x	1	2	3	4	5	6	7
y	26	32	34	37	42	45	49

5. **TAKS REASONING** Which type of function best models the data points?

    A Linear   **B** Quadratic

    C Cubic   **D** Exponential

6. **TAKS REASONING** Which equation best models the data?

x	0	5	10	15	20	25	30	35
y	125	90	63	43	28	20	16	10

    A $y = -3.14x + 104$ **B** $y = 126(0.931)^x$

    C $y = 125x^{-0.6}$ **D** $y = 0.12x^2 + 124$

7. **ERROR ANALYSIS** *Describe* and correct the error made in using the information on a graphing calculator screen to write a model.

> The ExpReg screen shows:
>
> y=a*b^x
> a=9.714963274
> b=1.550355116
>
> A model for the data is:
>
> $y = 9.71x^{1.55}$ ✗

8. **TAKS REASONING** Write a table of values that can be modeled by a quadratic function.

9. **CHALLENGE** The function $y = 5x^{2.3}$ models a table of data in which x-values are measured in inches and y-values are measured in pounds. If the table is changed to give the x-values in feet, what function models the revised data?