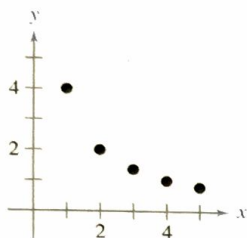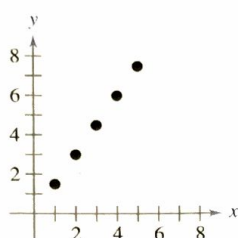*Think About It*   In Exercises 3 and 4, use the graph to determine whether y varies directly as some power of x or inversely as some power of x. Explain.

3.

4.

In Exercises 5–8, use the given value of k to complete the table for the direct variation model $y = kx^2$. Plot the points of a rectangular coordinate system.

x	2	4	6	8	10
$y = kx^2$					

5. $k = 1$ **6.** $k = 2$

7. $k = \frac{1}{2}$ **8.** $k = \frac{1}{4}$

In Exercises 9–12, use the given value of k to complete the table for the inverse variation model $y = k/x^2$. Plot the points on a rectangular coordinate system.

x	2	4	6	8	10
$y = \dfrac{k}{x^2}$					

9. $k = 2$ **10.** $k = 5$

11. $k = 10$ **12.** $k = 20$

In Exercises 13–16, determine whether the variation model is of the form $y = kx$ or $y = k/x$ and find k.

13.

x	5	10	15	20	25
y	1	$\frac{1}{2}$	$\frac{1}{3}$	$\frac{1}{4}$	$\frac{1}{5}$

14.

x	5	10	15	20	25
y	2	4	6	8	10

15.

x	5	10	15	20	25
y	−3.5	−7	−10.5	−14	−17.5

16.

x	5	10	15	20	25
y	24	12	8	6	$\frac{24}{5}$

Direct Variation   In Exercises 17–20, assume that y is proportional to x. Use the given x-value and y-value to find a linear model that relates y and x.

	x-Value	y-Value		x-Value	y-Value
17.	$x = 5$	$y = 12$	**18.**	$x = 2$	$y = 14$
19.	$x = 10$	$y = 2050$	**20.**	$x = 6$	$y = 580$

21. *Simple Interest*   The simple interest on an investment is directly proportional to the amount of the investment. By investing \$2500 in a certain bond issue, you obtained an interest payment of \$187.50 at the end of 1 year. Find a mathematical model that gives the interest I for this bond issue at the end of 1 year in terms of the amount invested P.

22. *Simple Interest*   The simple interest on an investment is directly proportional to the amount of the investment. By investing \$5000 in a municipal bond, you obtained an interest payment of \$337.50 at the end of 1 year. Find a mathematical model that gives the interest I for this municipal bond at the end of 1 year in terms of the amount invested P.

23. *Property Tax*   Property tax is based on the assessed value of the property. A house that has an assessed value of \$50,000 has a property tax of \$1840. Find a mathematical model that gives the amount of property tax y in terms of the assessed value x of the property. Use the model to find the property tax on a house that has an assessed value of \$85,000.

24. *State Sales Tax*   State sales tax is based on the retail price. An item that sells for \$145.99 has a sales tax of \$10.22. Find a mathematical model that gives the amount of sales tax y in terms of the retail price x. Use the model to find the sales tax on a \$540.50 purchase.