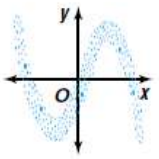
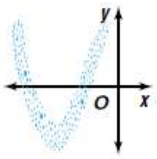
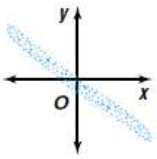
EXERCISES

Practice

Determine the type of polynomial function that could be used to represent the data in scatter plot.

8. 

9. 

10. 

11. What type of polynomial function would be the best model for the set of data?

x	1	2	3	4	5	7	8
$f(x)$	15	7	2	−1	3	10	15

Graphing Calculator

Use a graphing calculator to write a polynomial function to model each set of data.

12.

x	−3	−2	−1	0	1	2	3
$f(x)$	8.75	7.5	6.25	5	3.75	2.5	1.25

13.

x	−2	−1	0	1	2	3
$f(x)$	29	2	−9	−4	17	54

14.

x	−1	−0.5	0	0.5	1	1.5	2	2.5	3	3.5
$f(x)$	13	3	1	2	3	3	1	−1	1	10

15.

x	5	7	8	10	11	12	15	16
$f(x)$	2	5	6	4	−1	−3	5	9

16.

x	30	35	40	45	50	55	60	65	70	75
$f(x)$	52	41	32	44	61	88	72	59	66	93

17.

x	−17	−6	−1	2	8	12	15
$f(x)$	51	29	−6	41	57	37	19

18. Consider the set of data.

x	−2.5	−2	−1.5	−1	−0.5	0	0.5	1	1.5
$f(x)$	23	11	7	6	6	5	3	2	4

a. What quadratic polynomial function models the data?
b. What cubic polynomial function models the data?
c. Which model do you think is more appropriate? Explain.

19. **Marketing** The United States Census Bureau has projected the median age of the U.S. population to the year 2080. A fast-food chain wants to target its marketing towards customers that are about the median age.

Year	1900	1930	1960	1990	2020	2050	2080
Median age	22.9	26.5	29.5	33.0	40.2	42.7	43.9

a. Write a model that relates the median age as a function of the number of years since 1900.
b. Use the model to predict what age the fast-food chain should target in the year 2005.
c. Use the model to predict what age the fast-food chain should target in the year 2025.

20. **Critical Thinking** Write a set of data that could be best represented by a cubic polynomial function.