Pg. 241 #21, 22, 27-31 odd and pg. 251 #80

Find a quadratic function that includes each set of values.

16. $(1, -2), (2, -2), (3, -4)$ **17.** $(1, -2), (2, -4), (3, -4)$ **18.** $(-1, 6), (1, 4), (2, 9)$

19.

x	-1	1	2
$f(x)$	-1	3	8

20.

x	-1	1	2
$f(x)$	17	17	8

21. Physics A man throws a ball off the top of a building. The table shows the height of the ball at different times.

a. Find a quadratic model for the data.

b. Use the model to estimate the height of the ball at 2.5 seconds.

Height of a Ball

Time	Height
0 s	46 ft
1 s	63 ft
2 s	48 ft
3 s	1 ft

22. Communications The table shows the percent of U.S. houses with cable TV.

a. Find a quadratic model using 1960 as year 0, 1970 as year 10, and so on.

b. Use the model to estimate the percent of households with cable TV in 1995.

Television Cable Access

Year	1960	1970	1980	1990	2000
% of Households	0	7	20	56	68

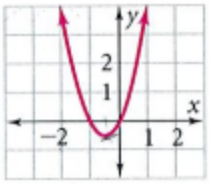
SOURCE: *Time Almanac*

80. Find a quadratic model for the values in the table.

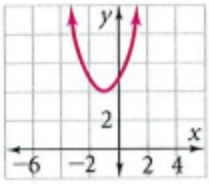
x	0	5	10	15	20
y	17	39	54	61	61

Identify the vertex and the axis of symmetry for each function.

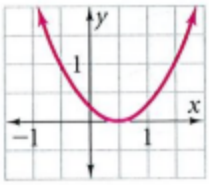
27.



28.



29.



30. a. Geometry Copy and complete the table. It shows the total number of segments that can be drawn among x points, no three of which are collinear.

Number of points, x	2	3	■	■
Number of segments, y	1	3	■	■

b. Write a quadratic model for the data.

c. Predict the number of segments that can be drawn among ten points.

31. a. Postal Rates Find a quadratic model for the data. Use 1974 as year 0.

Price of First-Class Stamp

Year	1974	1978	1981	1983	1988	1995	2001	2002
Price (cents)	10	15	18	20	25	32	34	37

b. Describe a reasonable domain and range for your model. (*Hint:* This is a discrete, real situation.)

c. Estimation Estimate when first-class postage was 29¢.

d. Use your model to predict when first-class postage will be 50¢. Explain why your prediction may not be valid.

The graph of each function contains the given point. Find the value of c.

32. $y = x^2 + c; (0, 3)$

33. $y = x^2 - c; (4, 8)$

34. $y = -5x^2 + c; (2, -14)$

35. $y = 2x^2 + c; \left(-\frac{3}{4}, -\frac{1}{4}\right)$

38. Road Safety The table below gives the stopping distance for an automobile under certain road conditions.

Speed (mi/h)	20	30	40	50	55
Stopping Distance (ft)	17	38	67	105	127

a. Find a linear model for the data.

b. Find a quadratic model for the data.

c. Writing Compare the models. Which is better? Explain.