Name_____ Class_____ Date_____

4-3 Practice

Form K

Find an equation in standard form of the parabola passing through the points. To start, substitute the (x, y) values into $y = ax^2 + bx + c$ to write a system of equations.

1. (2, −20), (−2, −4), (0, −8)

2. (1, −3), (2, 0), (3, 9)

3. (3, −1), (2, −5), (4, −5)

4. (−4, 3), (−6, 7), (−1, 12)

5. (2, 1), (1, −1), (4, −7)

6. (−1, 2), (−2, 7), (0, 7)

7. A player hits a tennis ball across the court and records the height of the ball at different times, as shown in the table.

Time(s)	Height (ft)
0	5.5
1	6.0
2	5.5
3	4.0

a. Find a quadratic model for the data.

b. Use the model to estimate the height of the ball at 4 seconds.

c. What is the ball's maximum height?

8. Reasoning Explain why the quadratic model only works up to 4.5 seconds — that height measurements made after 4.5 seconds are not valid. (Remember this is a discrete, real situation.)

9. The table at the right shows the height of the tides measured at the Santa Monica Municipal Pier in California. Hours are measured from 0.00 at midnight.

Time	Tide Height (ft)
0.33	3.9
3.30	2.7
11.11	4.6

SOURCE: www.tidesandcurrents.noaa.gov

a. Find a quadratic model for this data using quadratic regression.

b. Use the model to predict the lowest tide height.

c. When does the lowest tide occur?