Name _____ Date _____

Writing Quadratic Equations Monday

LESSON 4.10 **Practice**

For use with pages 308–315

$f(x)=a(x-h)^2+K$

Write a quadratic function in vertex form whose graph has the given vertex and passes through the given point.

1. vertex: (0, 0)
point: (2, 4)

2. vertex: (2, 1)
point: (4, 5)

3. vertex: (2, −4)
point: (0, 0)

4. vertex: (−4, −2)
point: (−3, −1)

5. vertex: (3, −2)
point: (7, 6)

6. vertex: (4, −5)
point: (1, 13)

Factored Form $f(x)=a(x-p)(x-q)$

Write a quadratic function in intercept form whose graph has the given *x*-intercepts and passes through the given point.

7. *x*-intercepts: 2, 3
point: (4, 2)

8. *x*-intercepts: −4, 1
point: (−3, −4)

9. *x*-intercepts: −5, 5
point: (6, 11)

10. *x*-intercepts: −7, −2
point: (−5, −6)

11. *x*-intercepts: 0, 4
point: (−1, 20)

12. *x*-intercepts: −3, −2
point: (−4, −6)

Name _____ Date _____

Quadratic Regression

LESSON 4.10 **Practice** *continued*
For use with pages 308–315

$f(x) = ax^2 + bx + c$.

Write a quadratic function in standard form whose graph passes through the given points.

13. (1, −2), (−2, 1), (3, 6)

14. (2, 6), (−2, −2), (1, 1)

15. (−2, 7), (−1, 3), (3, 7)

16. (1, 0), (2, 4), (0, 2)

17. (2, −4), (3, −7), (1, −3)

18. (−1, −2), (1, −4), (2, 1)

In Exercises 19 and 20, use the following information.

Population Model The following table shows the population of a town from 1996 to 2004. Assume that t is the number of years since 1996 and P is measured in thousands of people.

Year, *t*	0	1	2	3	4	5	6	7	8
Population, *P*	22.8	25.0	26.5	27.1	27.8	28.1	27.9	26.9	26.1

19. Use a graphing calculator to find the best-fitting quadratic model for the data.

20. Using the model, what is the population in 2007?

In Exercises 21 and 22, use the following information.

Operating Costs The following table shows the operating costs of a small business from 2000 to 2005. Assume that t is the number of years since 2000 and C is the cost in thousands of dollars.

Year, *t*	0	1	2	3	4	5
Operating costs, *C*	2.3	2.6	3.1	3.3	4.0	5.2

21. Use a graphing calculator to find the best-fitting quadratic model for the data.

22. Using the model, how much are the operating costs in 2008?