Name _____ Date _____

LESSON 9.8

Challenge Practice

For use with the lesson "Compare Linear, Exponential, and Quadratic Models"

In Exercises 1–3, use the following data.

(0, 3), (2, 7), (3, 9), (5, k)

1. Tell whether the data fits a *linear model*, *quadratic model*, or *exponential model*.
2. Find a value of k that makes the data fit the model selected in Exercise 1.
3. Write the model for the value of k found in Exercise 2.

In Exercises 4–6, use the following data.

(1, 3), (3, 6.75), (5, 15.1875), (7, k)

4. Tell whether the data fits a *linear model*, *quadratic model*, or *exponential model*.
5. Find a value of k that makes the data fit the model selected in Exercise 4.
6. Write the model for the value of k found in Exercise 5.

In Exercises 7–9, use the following data.

(2, 10), (5, 73), (8, 190), (11, k)

7. Tell whether the data fits a *linear model*, *quadratic model*, or *exponential model*.
8. Find a value of k that makes the data fit the model selected in Exercise 7.
9. Write the model for the value of k found in Exercise 8.
10. The weight of a male African elephant increases during the first year of life according to the model $y = 10{,}000 - 9650(k)^x$ where y represents the weight (in pounds) of the elephant and x represents the number of months after birth. If a one-year-old male African elephant weights 2000 pounds, how much did the elephant weigh when it was 4 months old?