6.2 Notetaking with Vocabulary (continued)

Extra Practice

1. In 2005, there were 100 rabbits in Polygon Park. The population increased by 11% each year.

    a. Write an exponential growth function that represents the population t years after 2005.

    b. What will the population be in 2025? Round your answer to the nearest whole number.

In Exercises 2–5, determine whether the table represents an *exponential growth function*, an *exponential decay function*, or *neither*. Explain.

2.

x	y
0	20
1	30
2	45
3	67.5

3.

x	y
−1	160
0	40
1	10
2	2.5

4.

x	y
1	32
2	22
3	12
4	2

5.

x	y
−1	4
0	10
1	25
2	62.5

In Exercises 6–8, determine whether each function represents *exponential growth* or *exponential decay*. Identify the percent rate of change.

6. $y = 4(0.95)^t$

7. $y = 500(1.08)^t$

8. $w(t) = \left(\dfrac{3}{4}\right)^t$

In Exercises 9 and 10, write a function that represents the balance after t years.

9. $3000 deposit that earns 6% annual interest compounded quarterly.

10. $5000 deposit that earns 7.2% annual interest compounded monthly.

6.2 Practice A

In Exercises 1–3, identify the initial amount a and the rate of growth r (as a percent) of the exponential function. Evaluate the function when $t = 5$. Round your answer to the nearest tenth.

1. $y = 50(1 + 0.25)^t$ 2. $y = 172(1 + 0.3)^t$ 3. $y = 1000(1.75)^t$

In Exercises 4 and 5, write a function that represents the situation.

4. Profits of $100,000 increase by 15% each year.

5. College enrollment of 41,000 increases by 7% every year.

6. The number of food trucks in a city has been increasing by 50% annually. There were two food trucks in the year 2010.

   a. Write an exponential growth function that represents the number of food trucks t years after 2010.

   b. How many food trucks will there be in the year 2030? Does this sound reasonable? Explain.

In Exercises 7–9, identify the initial amount a and the rate of decay r (as a percent) of the exponential function. Evaluate the function when $t = 3$. Round your answer to the nearest tenth.

7. $y = 12(1 - 0.35)^t$ 8. $y = 360(1 - 0.9)^t$ 9. $h(t) = 550(0.4)^t$

In Exercises 10 and 11, write a function that represents the situation.

10. A school population of 1200 decreases by 6% each year.

11. A stock valued at $49.50 decreases in value by 7% each year.

In Exercises 12 and 13, determine whether the table represents an *exponential growth function*, an *exponential decay function*, or *neither*. Explain.

12.
x	0	1	2	3
y	4	12	36	108

13.
x	0	1	2	3
y	200	100	50	25

In Exercises 14–16, determine whether the function represents *exponential growth* or *exponential decay*. Identify the percent rate of change.

14. $y = 3(0.4)^t$ 15. $y = 18(1.3)^t$ 16. $y = 41(1.07)^t$