Name_____ Date _____

6.4 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.** $y = 41(1.07)^t$

Name _____ Date _____

6.4 Practice B

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. $f(t) = 220(1.015)^t$ **2.** $p(t) = 5.5(1.5)^t$ **3.** $h(t) = 2.5^t$

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

4. A college's tuition of \$135 per credit hour increases by 5% each year.

5. A bee population of 3000 increases by 40% every year.

In Exercises 6–8, 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.

6. $f(t) = 1420(0.895)^t$ **7.** $y = \left(\frac{3}{5}\right)^t$ **8.** $y = 9.2\left(\frac{1}{3}\right)^t$

In Exercises 9 and 10, write a function that represents the situation.

9. A \$25,000 car decreases by 16.7% each year.

10. A company's annual revenue of \$487,000 decreases by 4.2% each year.

In Exercises 11 and 12, determine whether the table represents an *exponential growth function*, an *exponential decay function*, or *neither*. Explain.

11.

x	2	4	6	8
y	5	10	15	20

12.

x	1	5	9	13
y	81	54	36	24

13. The table shows the total numbers of shares of an initial public offering purchased *t* days after it opens on the stock market.

x	1	2	3	4
y	6250	2500	1000	400

a. Determine whether the table represents an exponential growth function, an exponential decay function, or neither.

b. How many shares were purchased after the stock had been opened for 6 days?

In Exercises 14–16, rewrite the function to determine whether it represents *exponential growth* or *exponential decay*.

14. $y = (0.3)^{t-2}$ **15.** $y = 3(1.6)^{4t}$ **16.** $y = 9(0.68)^{t/3}$