

Unit 4.6 Exponential Growth and Decay PRACTICE

Period: _____

Identify the initial amount "a" and the growth factor "b" in each exponential function.

1. $f(x) = 3 \cdot 5^x$

2. $y = 250 \cdot 1.065^x$

3. $g(t) = 3.5^t$

4. $h(x) = 5 \cdot 1.02^x$

Find the balance in each account after the given period.

5. \$8000 principal earning 5% compounded annually, after 6 years

6. \$2000 principal earning 5.4% compounded annually, after 4 years

7. \$500 principal earning 4% compounded quarterly, after 10 years

8. \$6500 principal earning 2.8% compounded monthly, after 2 years

Identify the initial amount "a" and the decay factor "b" in each exponential function.

9. $y = 8 \cdot 0.8^x$

10. $f(x) = 12 \cdot 0.1^x$

State whether the equation represents exponential growth, exponential decay, or neither.

11. $y = 0.82 \cdot 3^x$

12. $f(x) = 5 \cdot 0.3^x$

13. $f(x) = 18 \cdot x^2$

14. $y = 0.9^x$

15. The town manager reports that revenue for a given year is \$2.5 million. The budget director predicts that revenue will increase by 4% per year, bi-annually. If the director's prediction holds true, how much revenue will the town have available 10 years from the date of the town manager's report? Write an expression to represent the equivalent monthly increase in revenue.

Principle = P = _____

Annual interest rate as a decimal = r = _____

Number of times interested per year = n = _____

Number of years invested = t = _____

Expression = _____

Revenue to the town available after 10 years = _____

16. A wildlife manager determines that there are approximately 200 deer in a certain state park.

a. The population is growing at a rate of 7% per year. How many deer will live in the park after 4 years?

Principle = $P =$ _____

Annual interest rate as a decimal = $r =$ _____

Number of times interested per year = $n =$ _____

Number of years invested = $t =$ _____

Expression = _____

Number of deer living in the park after 4 years = _____

b. If the carrying capacity of this park is 350 deer, how long will it take for the deer population to reach carrying capacity?

Between _____ years and _____ years.

17. A business purchases a computer system for \$3000. If the value of the system decreases at a rate of 15% per month, how much is the computer worth after 4 years?

Principle = $P =$ _____

Annual interest rate as a decimal = $r =$ _____

Number of times interested per year = $n =$ _____

Number of years invested = $t =$ _____

Expression = _____

Computer worth after 4 years = _____

State whether each graph shows an exponential growth function, an exponential decay function, or neither.

