Name ______________________ Class ____________ Date ____________

# 7-7 Practice

*Form K*

## Exponential Growth and Decay

**Identify the initial amount *a* and the growth factor *b* in each exponential function. (Hint: In the exponential equation $y = a \cdot b^x$, *a* is the initial amount and *b* is the growth factor when $b > 1$.)**

**1.** $f(x) = 2 \cdot 3^x$

**2.** $y = 5 \cdot 1.06^x$

**3.** $g(t) = 6^t$

**4.** $h(x) = -3 \cdot 2^x$

**Use the given function to find the balance in each account after the given period.**

**5.** \$3000 principal earning 4% compounded annually, after 6 years
$f(x) = 3000 \cdot (1.04)^6$

**6.** \$2000 principal earning 6.8% compounded annually, after 3 years
$f(x) = 2000 \cdot (1.068)^3$

**Find the balance in each account after the given period.**

**7.** \$5000 principal earning 4% compounded annually, after 10 years

**8.** \$3500 principal earning 3.6% compounded annually, after 2 years

**Identify the initial amount *a* and the decay factor *b* in each exponential function. (Hint: In the exponential equation $y = a \cdot b^x$, *a* is the initial amount and *b* is the *decay* factor when $b < 1$.)**

**9.** $y = 4 \cdot 0.2^x$

**10.** $f(x) = 3 \cdot 0.9^x$

**Tell whether the equation represents *exponential growth*, *exponential decay*, or *neither*.**

**11.** $y = 2 \cdot 3^x$

**12.** $f(x) = 6 \cdot 0.5^x$

**13.** $f(x) = 5 \cdot x^2$

**14.** $y = 0.3^x$

Name ______________________________ Class ____________ Date ____________

# 7-7 Practice (continued) *Form K*

## Exponential Growth and Decay

**15.** The town manager reports that incoming revenues for a given year were \$2 million. The budget director predicts that revenues will increase by 4% per year. How much revenue will the town have available 10 years from the date of the town manager's report if the equation that models the growth is $f(x) = 2{,}000{,}000 \bullet (1.04)^x$?

**16.** A fisheries manager determines that there are approximately 3000 bass in a lake.

**a.** The population is growing at a rate of 2% per year. The function that models that growth is $y = 3000 \bullet 1.02^x$. How many bass will live in the lake after 4 years?

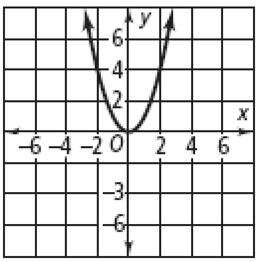
**b.** How many bass will live in the lake after 7 years?

**c.** About how long will it be before there are 4000 bass in the lake?

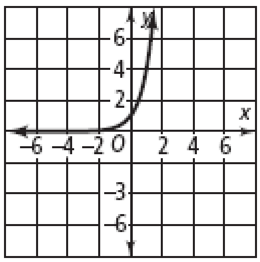
**17.** A business purchases a computer system for \$2000. The tax code allows them to take off a portion of that purchase for each year the computer system is used. If the value of the system is *depreciated* at a rate of 15% per year, the function that models the current value of the system is $f(x) = 2000 \cdot 0.85^t$. How much is the computer worth after 4 years?

**Tell whether each represents an *exponential growth function*, an *exponential decay function*, or *neither*.**

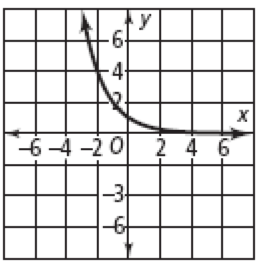
**18.**




**19.**




**20.**




**21.**