



## 6-3 Additional Practice

### Exponential Growth and Decay

Write an exponential growth model for each situation.

1. initial value: 2,000  
growth rate: 6%
2. initial value: 50  
growth rate: 75%
3. initial value: 40  
growth rate: 100%

Write an exponential decay model for each situation. The value of  $x$  for each value of  $f(x)$  will lie between two consecutive whole numbers. List the whole numbers.

4. initial value: 1,000  
decay rate: 20%  
 $f(x) = 500$
5. initial value: 1,800  
decay rate: 7%  
 $f(x) = 400$
6. initial value: 1,200  
decay rate: 12.5%  
 $f(x) = 450$

7. Suppose the function  $f$  has an initial value of 1,000 and a decay rate of 5%. Let the function  $g$  have an initial value of 400 and increase at a growth rate of 17%. Estimate a value of  $x$ , to the nearest tenth, for which  $f(x) = g(x)$ .
8. An exponential function has an initial value of 500 and a decay rate of 15%. Compare the average rate of change for the interval  $0 < x < 4$  to the average rate for the interval  $4 < x < 8$ . What do you think will happen to the average rate of change for intervals beyond  $x = 8$ ? Explain.
9. Harrison is comparing two certificates of deposit, one at a local financial institution and the other at an online financial institution. The local institution offers a rate of 6% compounded annually while the online institution offers a rate of 6% compounded quarterly. If Harrison has a principal amount of \$5,000, which institution offers the better deal, assuming he makes no further deposits or withdrawals? Explain.