

5. To teach Miguel about saving money, his father told him that he would hold some of Miguel's money and double the amount each year,  $x$ , but he would only hold it so long as the amount was still under \$100. If Miguel gives his father \$1 and his father doubles the money each year, so long as the doubled amount is below \$100, which inequality could Miguel use to track the amount of money?
- A.  $1 \cdot x^2 < 100$   
 B.  $1 \cdot x^2 > 100$   
 C.  $1 \cdot 2^x < 100$   
 D.  $1 \cdot 2^x > 100$
6. Yolanda bought a new car for \$8,000. She knows that if she takes good care of the car, its value will decrease by only 10% each year. After a certain number of years, the car will be worth \$5,832. According to the formula  $8,000 \cdot 0.9^t = 5,832$ , how many years,  $t$ , will it take for the car's value to decrease to \$5,832?
- A. 1 year  
 B. 2 years  
 C. 3 years  
 D. 4 years
7. A local newspaper said that the city of Luttrell is expected to grow by 4% each year. The population in 2012 is 130,457 people. Let  $t$  represent the number of years after 2012. Which equation could be used to determine the total expected population,  $L$ , of Luttrell in  $t$  years?
- A.  $L = 130,457 + 1.04t$   
 B.  $L = 130,457 \cdot 1.04^t$   
 C.  $L = 130,457t + 1.04t$   
 D.  $L = 130,457^{1.04t}$
8. Yoshi plans to open a savings account with \$2,000. He compares the savings account plans at two banks. Each bank offers an annual interest rate of 8%. Bank A compounds the interest monthly, while Bank B compounds the interest annually. Which of the following function pairs can be used to find the projected values of these accounts after  $t$  years?
- A.  $A(t) = 2000\left(1 + \frac{0.08}{12}\right)^{12t}$ ;  
 $B(t) = 2000(1.08)^t$   
 B.  $A(t) = 2,000(1.08)^{12t}$ ;  
 $B(t) = 2,000(1.08)^t$   
 C.  $A(t) = 2,000(12t + 0.08)^2$ ;  
 $B(t) = 2,000(t + 0.08)^2$   
 D.  $A(t) = 2,000(1.08 + 12t)$ ;  
 $B(t) = 2,000(1.08 + t)$
9. For an exponential function  $g(x) = b^x + c$ , with  $b > 1$  and  $c > 1$ , which best describes the domain and range of  $g(x)$ ?
- A. domain:  $x \geq 0$ ; range: all real numbers  
 B. domain:  $x > c$ ; range: all real numbers  
 C. domain: all real numbers; range:  $g(x) \geq c$   
 D. domain: all real numbers; range:  $g(x) > c$