Algebra 1: Chapter 5 Test Review **Name** _____ **Period** ____

Simple: $A = P + (Pr)t$ Compound: $A = P(1+r)^t$

1. Cole deposited $1200 into an account. The interest rate is 5%. Use the simple and compound interest formulas to complete the table. **Round to the nearest CENT**.

   a. If it costs $300.00 to keep your savings in a compound interest account, should you use that account if you save your money for only 10 years?

   b. For 20 years?

Quantity	Time	Simple Interest Balance	Compound Interest Balance
Units			
Expression			
	0		
	3		
	10		
	20		

2. Dab City has a population of 26,000. Its population is ***increasing*** at a rate of 3.5%.
   - Write a function to represent the population as a function of time.
   - Determine the population after each given number of years. **Round your answer to the nearest WHOLE NUMBER.**

   Function: $P(t) = P(1+r)^t$

   a. 2 years b. 10 years c. 20 years

3. Whoville has a population of 85,000. Its population is ***decreasing*** at a rate of 2.5%.
   - Write a function to represent the population as a function of time.
   - Determine the population after each given number of years. **Round your answer to the nearest WHOLE NUMBER.**

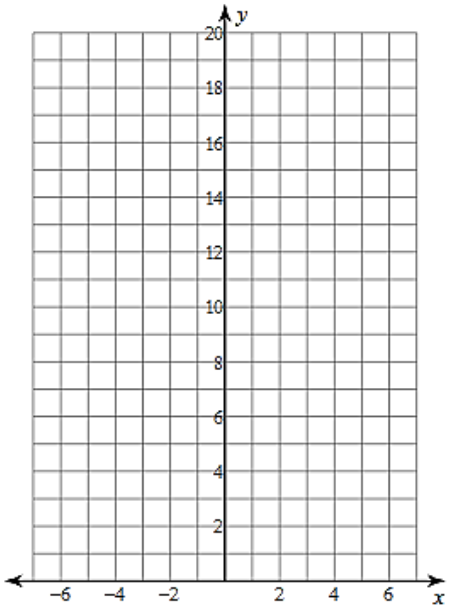
   Function: $P(t) = P(1-r)^t$

   a. 5 years b. 8 years c. 16 years

Complete the table and graph each function. List the y-intercept, asymptote, domain, and range.

4. $y = 2^x$

x	y
-2	
-1	
0	
1	
2	

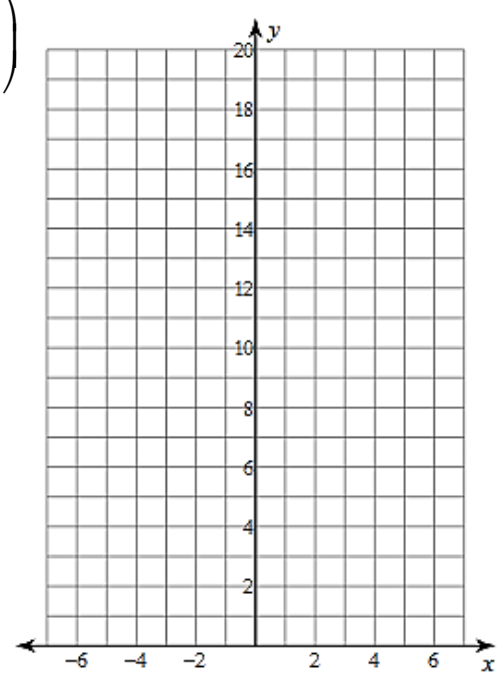


y-intercept: asymptote:

domain: range:

5. $y = \left(\frac{1}{4}\right)^x$

x	y
-2	
-1	
0	
1	
2	

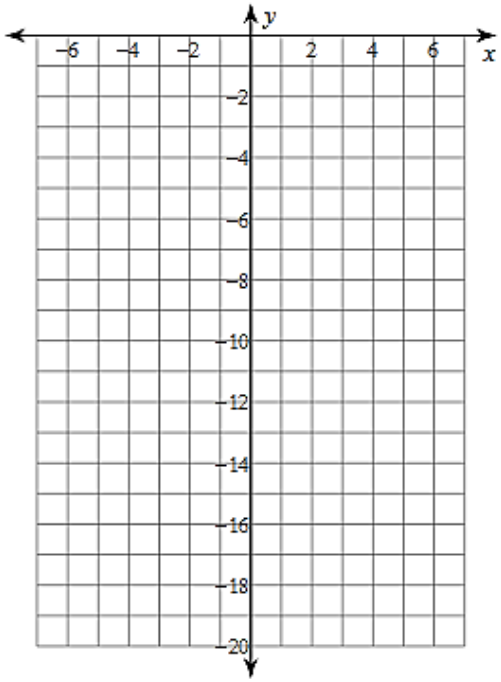


y-intercept: asymptote:

domain: range:

6. $y = -2 \cdot 2^x$

x	y
-2	
-1	
0	
1	
2	

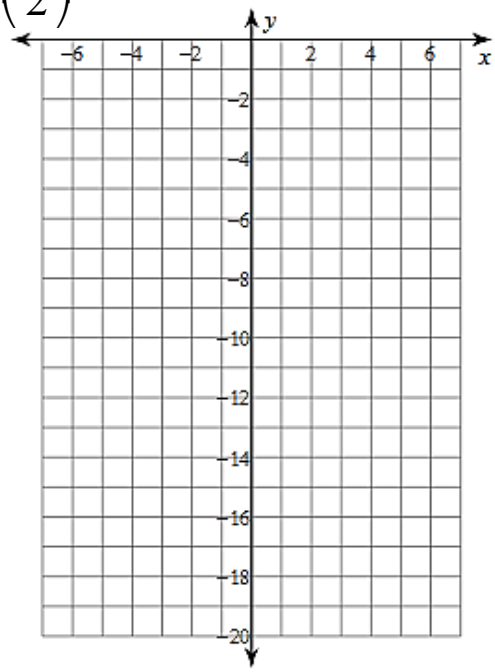


y-intercept: asymptote:

domain: range:

7. $y = -3 \cdot \left(\frac{1}{2}\right)^x$

x	y
-2	
-1	
0	
1	
2	



y-intercept: asymptote:

domain: range:

8. **Write the equation of each function g(x) after the translation.**

   a. $f(x) = -8x$ after a translation 6 units to the right

   b. $f(x) = 4^x$ after a translation 3 units up

   c. $f(x) = 2x^2$ after a translation 2 units left

   d. $f(x) = 4x$ after a translation 7 units down

   e. $f(x) = 5x^2$ after a reflection over the x-axis

   f. $f(x) = 2^x$ after a reflection over the y-axis

   g. $f(x) = \left(\frac{1}{2}\right)^x$ after a translation 4 units to the right

   h. $f(x) = x^2$ after a translation 4 units down

9. **Describe each graph in relation to its basic function.**

   a. Compare $g(x) = (x+2)^2$ to the basic function $f(x) = x^2$

   b. Compare $g(x) = b^x + 1$ to the basic function $f(x) = b^x$

   c. Compare $g(x) = b^{-x}$ to the basic function $f(x) = b^x$

   d. Compare $g(x) = 2^{(x-7)}$ to the basic function $f(x) = 2^x$

   e. Compare $g(x) = -4x^2$ to the basic function $f(x) = 4x^2$

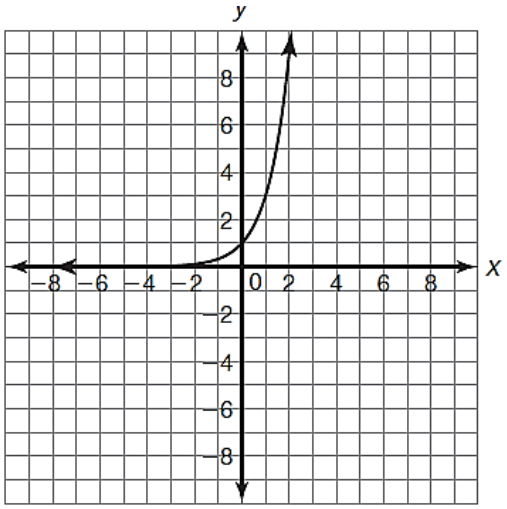
   f. Compare $g(x) = b^{(x-2)}$ to the basic function $f(x) = b^x$

   g. Compare $g(x) = -2^x$ to the basic function $f(x) = 2^x$

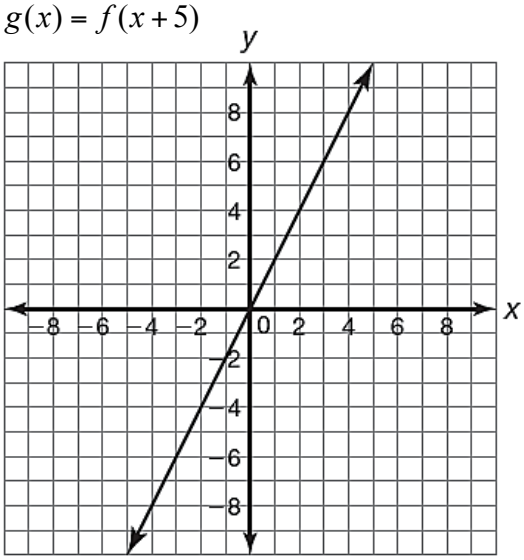
   h. Compare $g(x) = \left(\frac{1}{2}\right)^{(x+4)}$ to the basic function $f(x) = \left(\frac{1}{2}\right)^x$

10. Each coordinate plane shows the graph of the basic function. Sketch the graph of $g(x)$.

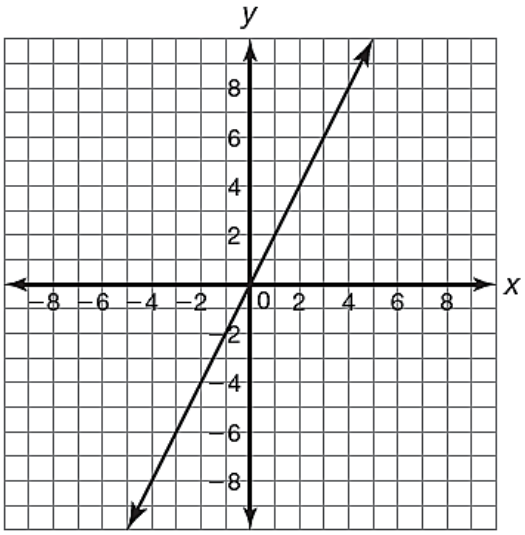
a. $g(x) = b^{(x-6)}$



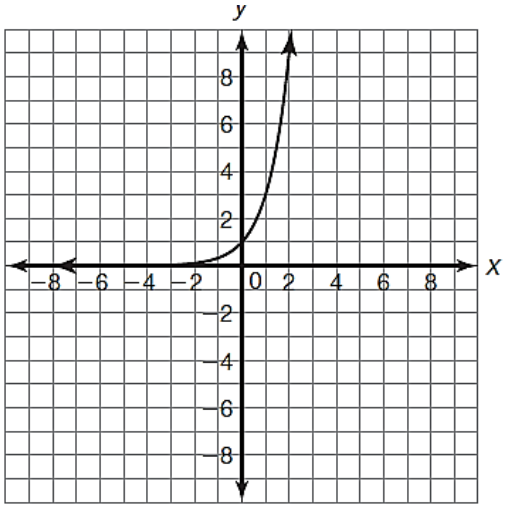
b. $g(x) = f(x+5)$



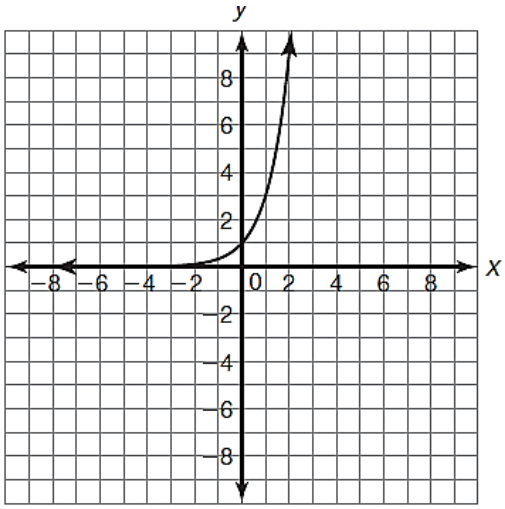
c. $g(x) = f(x) + 2$



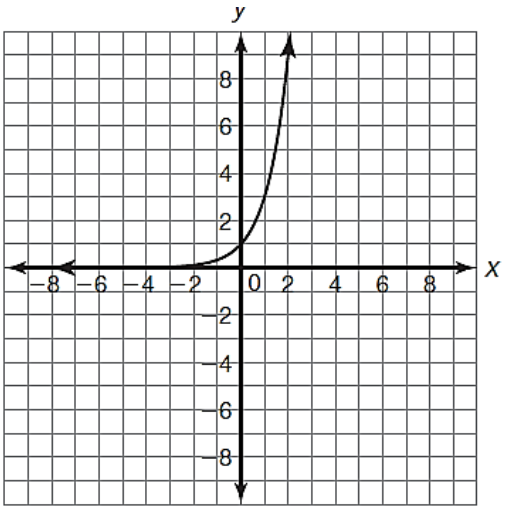
d. $g(x) = b^x - 4$



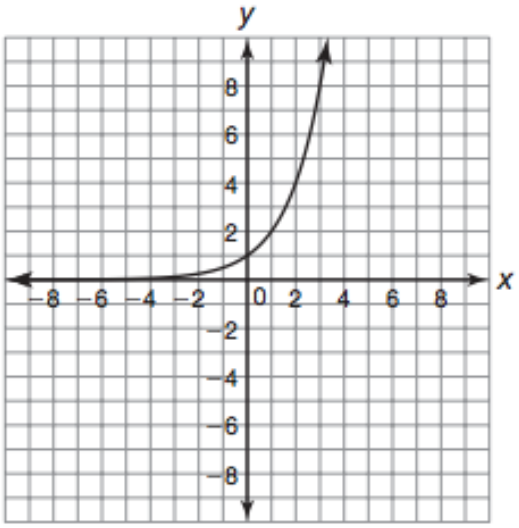
e. $g(x) = b^{-x}$



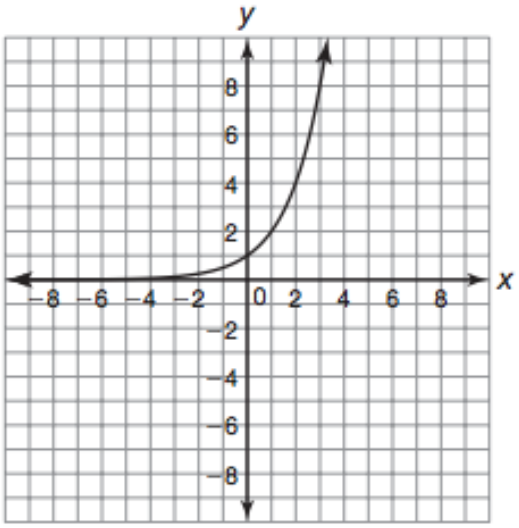
f. $g(x) = -b^x$



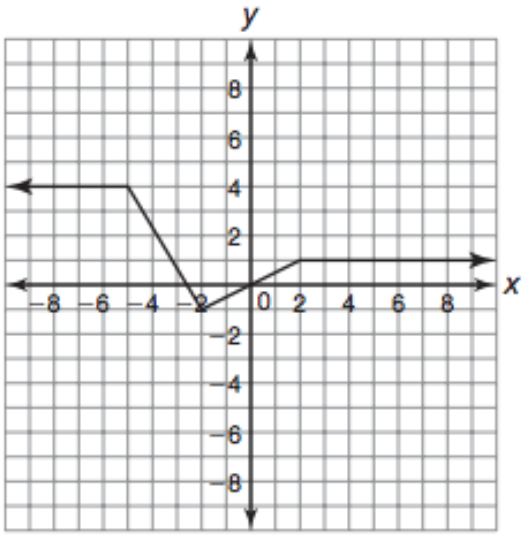
g. $g(x) = f(x) - 4$



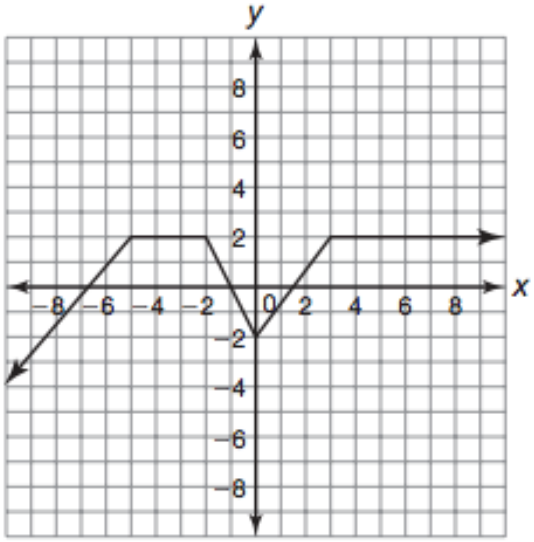
h. $g(x) = f(x - 3)$



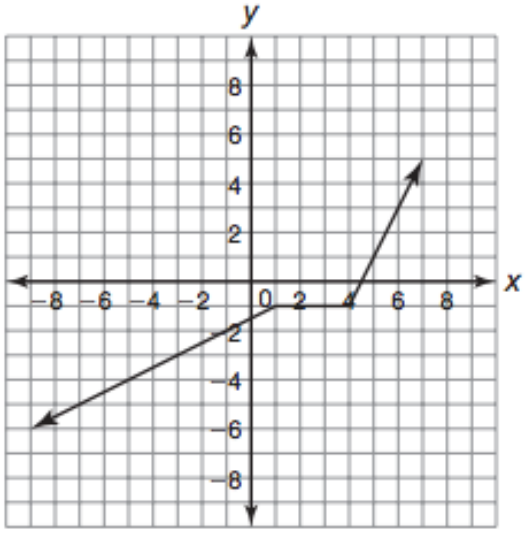
i. $g(x) = f(x) + 5$



j. $g(x) = f(x + 5)$



k. $g(x) = -f(x)$



l. $g(x) = f(-x)$