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

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

1. Cole has \$1200 to deposit into an account. The interest rate available for the account is 5%. Use the simple and compound interest formula to complete the table. Round to the nearest cent.

   a. If it costs \$300.00 to have your savings in a compound interest account, would it make sense to use that account if you were only going to save your money for 10 years?

   b. What about 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.

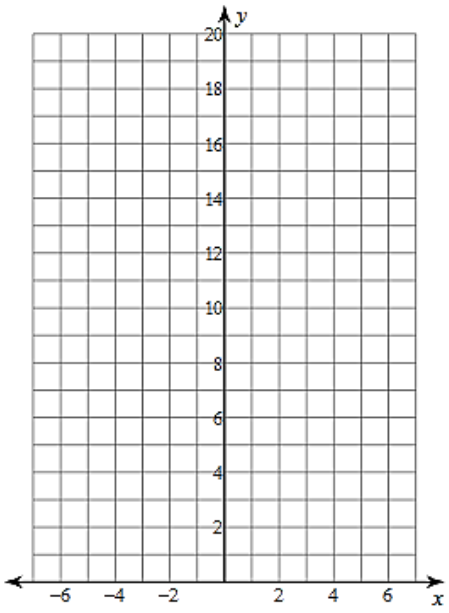
   Function: $P(t) = P(1-r)^t$

   a. 8 years b. 5 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	

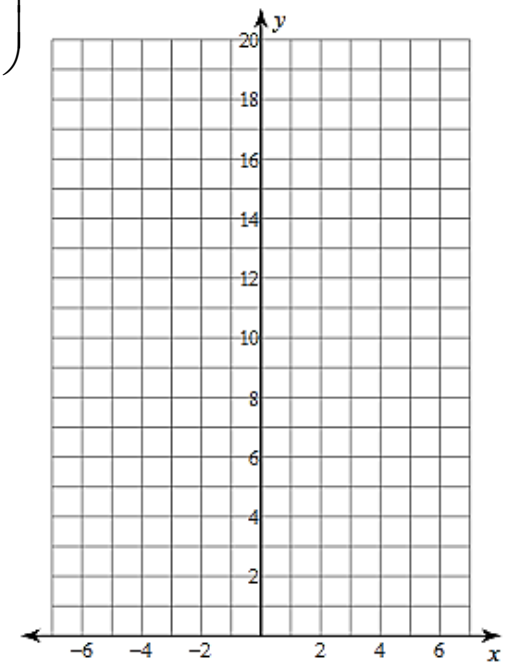


y-intercept: asymptote:

domain: range:

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

x	y
-2	
-1	
0	
1	
2	

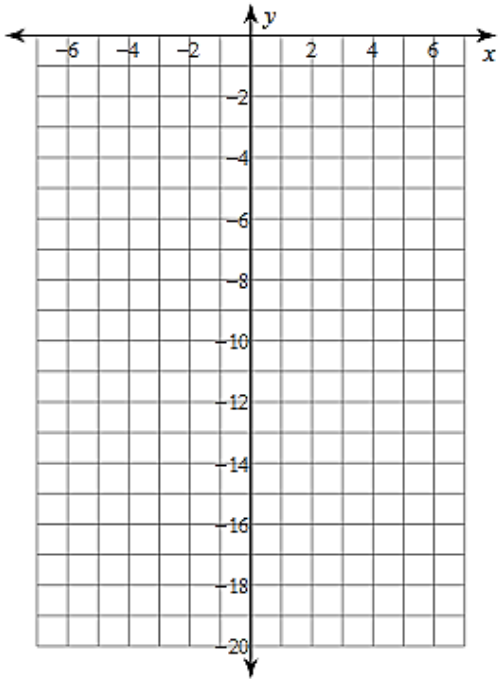


y-intercept: asymptote:

domain: range:

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

x	y
-2	
-1	
0	
1	
2	

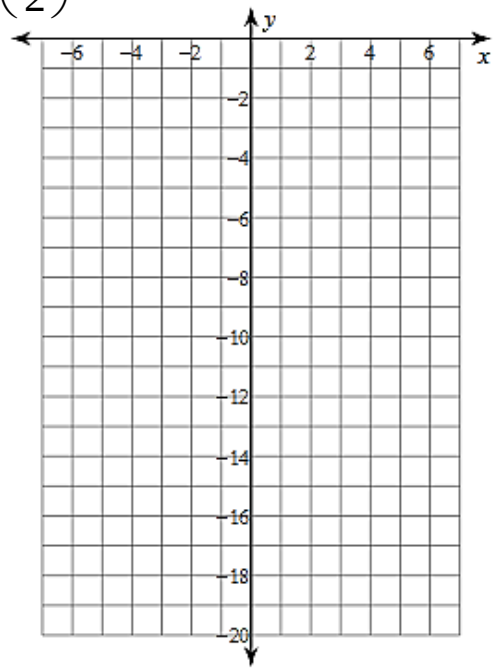


y-intercept: asymptote:

domain: range:

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

x	y
-2	
-1	
0	
1	
2	



y-intercept: asymptote:

domain: range:

Each of the following represents a transformation of the original function $f(x)=x$ or $f(x)=b^x$.

Vertical Translations!!!	**Horizontal Translations!!!**	**Reflections!!!**
$g(x)=(x)+b$ (up)	$g(x)=(x+b)$ (left)	$g(x)=-b^x$ (across x-axis)
$g(x)=b^x+k$ (up)	$g(x)=b^{(x+c)}$ (left)	$g(x)=b^{-x}$ (across x-axis)
$g(x)=(x)-b$ (down)	$g(x)=(x-b)$ (right)	
$g(x)=b^x-k$ (down)	$g(x)=b^{(x-c)}$ (right)	

8. Write the equation of each function after the translation described.

   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 unites 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

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 $f(x)=b^x$

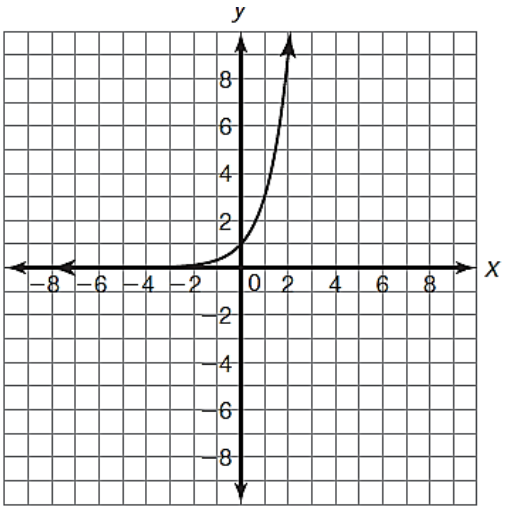
   d. Compare $g(x)=(x-7)$ to the basic function $f(x)=x$

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

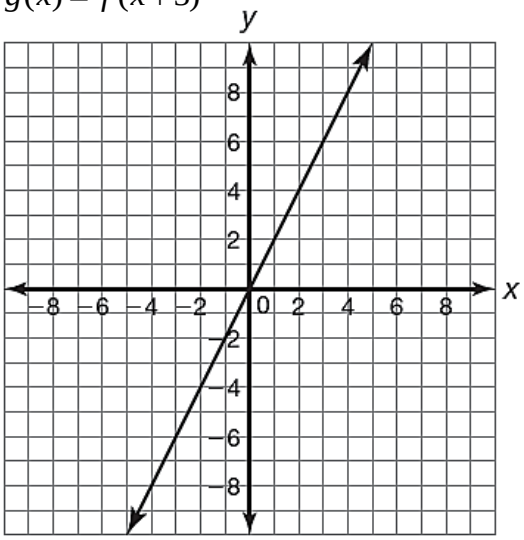
   f. Compare $g(x)=(b-2)^x$ to the basic function $f(x)=b^x$

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

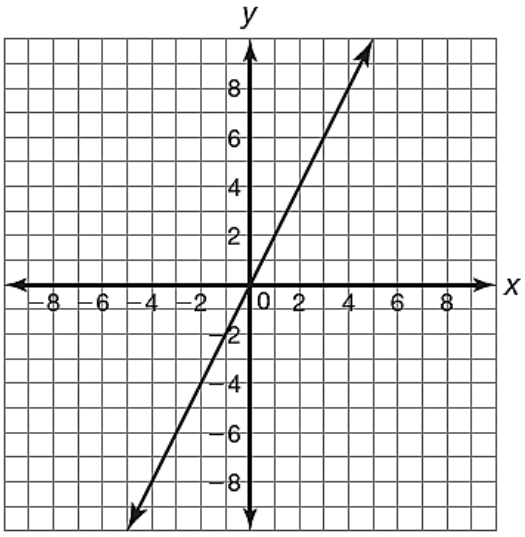
a. $g(x) = b^{(x-4)}$



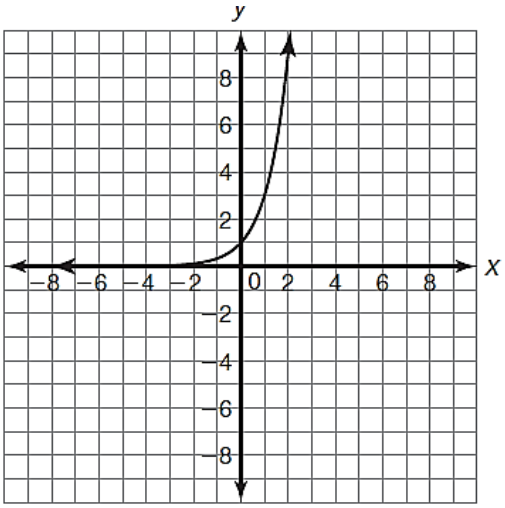
b. $g(x) = f(x+5)$



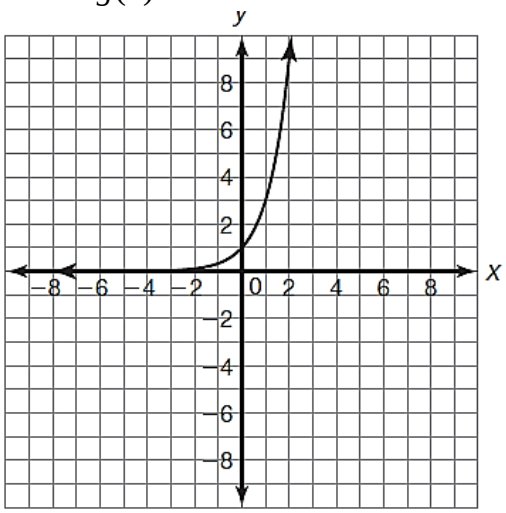
c. $g(x) = f(x) + 2$



d. $g(x) = b^x - 7$



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



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