Algebra 1: 5.1 – 5.3 Test Review

_____ Period____

Simple: A = P + (Pr)t

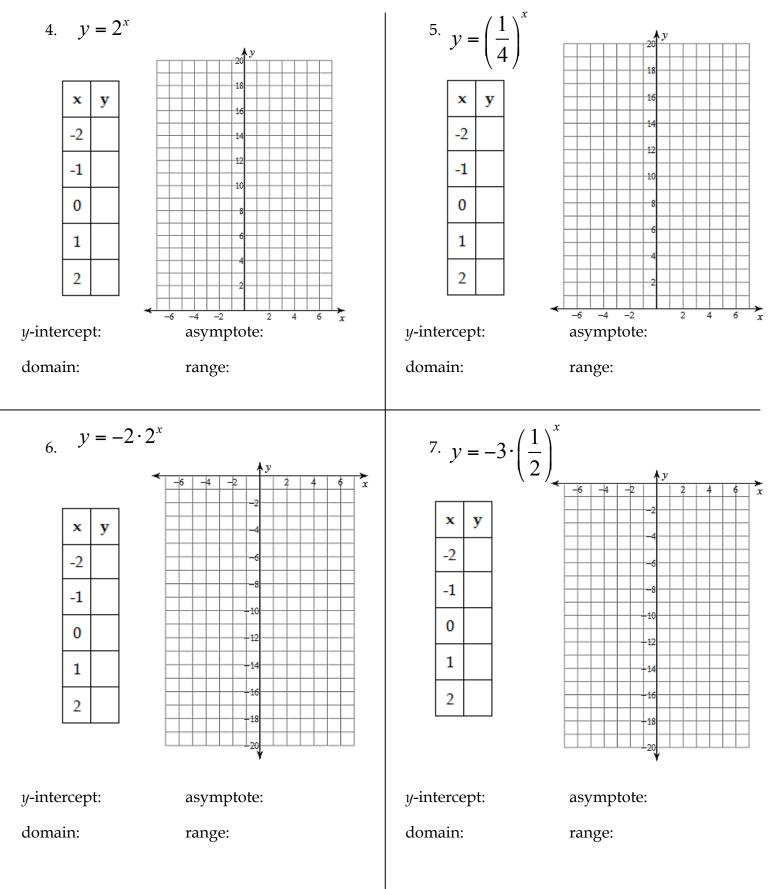
Compound: $A = P(1+r)^t$

1. Adil has \$1,200 to deposit into an account with an interest rate of 5%. Use the simple and compound interest formulas to complete the table. **Round to the NEAREST CENT.**

	Quantity	Time	Simple Interest Balance	Compound Interest Balance
 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 	Units			
	Expression			
going to save your money for 10 years?		0		
b. What about for 20 years?		3		
		10		
		20		

- 2. Bryce City has a population of 26,000. Its population is increasing at a rate of 3.5%.
 - Write a function to represent the population over time. $P(t) = P(1+r)^t$
 - Determine the population after a given number of years. **Round to the nearest WHOLE NUMBER.**
 - a. 2 years b. 10 years c. 20 years
- 3. Khanyaville has a population of 85,000. Its population is decreasing at a rate of 2.5%.
 - Write a function to represent the population over time. $P(t) = P(1-r)^{t}$
 - Determine the population after a given number of years. **Round to the nearest WHOLE NUMBER.**
 - a. 8 years b. 5 years c. 16 years

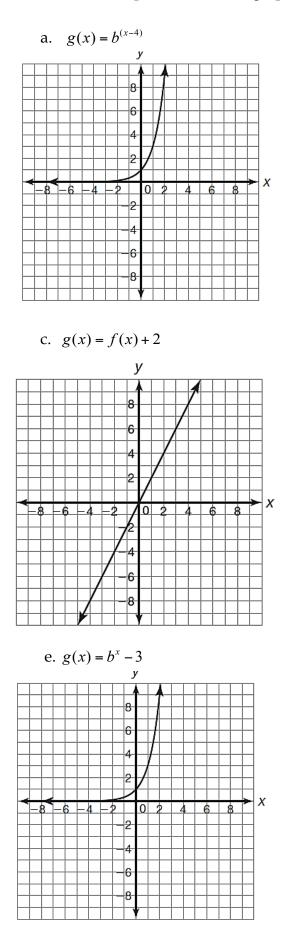
Complete the table. Graph each exponential function. Identify the *y*-intercept, asymptote, domain, and range. **Type each expression into the calculator exactly as it is written, replacing** *x* **with its value.**



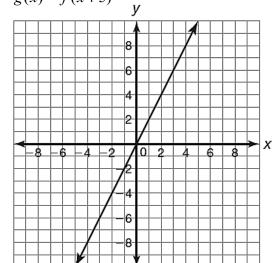
- 8. Write the equation of each new function g(x) after the translation.
 - a. f(x) = -8x after a translation **6 units to the right**
 - b. $f(x) = 4^x$ after a translation **3 units up**
 - c. $f(x) = 2x^2$ after a translation **2 units left**
 - d. f(x) = 4x after a translation **7 units down**
 - e. $f(x) = \left(\frac{1}{2}\right)^{x}$ after a translation **4 units to the right**
 - f. $f(x) = x^2$ after a translation **4 units down**
- 9. Describe each graph in relation to its basic function, i.e. vertical translation up 8 units.
 - a. Compare the basic function $f(x) = x^2$ to $g(x) = (x+2)^2$
 - b. Compare the basic function $f(x) = b^x$ to $g(x) = b^x + 1$
 - c. Compare the basic function $f(x) = 2^x$ to $g(x) = 2^{(x-7)}$
 - d. Compare the basic function $f(x) = 4x^2$ to $g(x) = 4(x-9)^2$
 - e. Compare the basic function $f(x) = b^x$ to $g(x) = b^{(x-2)}$

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

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



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



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

