**Practice Test Questions**

**Applications**

1. A limousine costs $80,000 new, but depreciates at a rate of 30% per year. What is the value of the limousine after 7 years?
	1. $50,1988.14
	2. $6,588.34
	3. $17. 50
	4. $3,282,709.39
2. A culture of bacteria triples every hour. If there are 600 bacteria at the beginning, how many bacteria will there be after 10 hours?
	1. 35,429,400
	2. 629,145,600
	3. 614,400
	4. .0101361053
3. Given the function, determine if this function models exponential growth or decay and identify the growth and decay rate.
	1. Decay, 64%
	2. Growth, 64%
	3. Decay, 36%
	4. Growth, 36%
4. The value (in millions of dollars) of a large company is modeled by. What is the projected annual percent growth and what is the initial value?
	1. 10.5%; $250 million
	2. 2.50%; $105 million
	3. 250%; $5 million
	4. 5%; $250 million
5. The population of a small town has established a growth rate of 5% per year. If the current population is 4000, and the growth rate remains steady, how many years will it take for the population to first go over 5000?
	1. 3
	2. 4
	3. 5
	4. 6
6. The population of a Russian Village is currently 600. Based on the observed growth of the population in the past years it is estimated that after 1 year the population will be 720. Similarly, it is estimated that after 2 and 3 years, the population of the village will be 864, and 1,036 respectively. Which function describes the relationship between year and the village population?

**Practice Test Questions**

**Graphing and Transformations**



 Determine the function represented by the graph above.

1. Graph the function
	1.  b. c. d.



1.

1. Given and, describe the transformations performed on f(x) to get g(x).
	1. Reflection over x-axis, Vertical Stretch by a factor of 4, Vertical Shift up 4
	2. Vertical Shrink by a factor of -4, Vertical Shift Up 4
	3. Reflection over the x-axis, Vertical Stretch by a factor of 4, Vertical Shift down 4
	4. Reflection over the x-axis, Vertical Shrink by a factor of 1/4, Vertical Shift down 4
2. Which of the following equations represents a reflection over the x-axis, horizontal shift left 5, vertical shift up 12, and a shrink from the parent function f(x) = 2x

**Practice Test**

**Geometric Sequences**

Write an explicit rule for the following sequences (questions 1 – 3):





Given the recursive formula, write an explicit formula for the same sequence (questions 4-6)



4. 5.

6.

Write an explicit formula and find the specific term (questions 7-8).

7. 8.

**Practice Test Questions**

**Characteristics of Exponential Functions**



1.

 What is the average rate of change for the function f(x) on the interval [-2, 0]?

1. -2
2. -3
3. -6
4. -1.5
5. What is the asymptote of the function ?
6. x = .5
7. y = 2
8. x = 4
9. y = -4



1.

 State the **range** of the function.

1. (-∞, 3)
2. (3, -∞)
3. (3, ∞)
4. (-∞,∞)
5.  State the **range** of the function.
	1. (2, ∞)
	2. (2, -∞)
	3. (∞, 2)
	4. (-∞,∞)
6. Calculate the average rate of change for the function over the interval [5, 8]
	1. 8
	2. 168
	3. 12
	4. 512
7. What is the y intercept of a function whose equation is?
	1. 3
	2. 2
	3. 1
	4. 0



1.

Which statement correctly describes part of the end behavior of the function graphed?

* 1. As x → ∞, y → ∞
	2. As x → -∞, y → -∞
	3. As x → ∞, y → -∞
	4. As x → -∞, y → 3
1. 

Which statement correctly describes part of the end behavior of the function graphed?

* 1. As x → ∞, y → ∞
	2. As x → -∞, y → -∞
	3. As x → ∞, y → 2
	4. As x → -∞, y → 2