Math 2   Name: _____
Module 0, Day 4   Date: _____ Period: ____

Show all your work and reasoning. Use a pencil and highlight your answers.

1. The table below represents the terms of an arithmetic sequence. Determine explicit and recursive functions for this sequence.

n	1	14
$f(n)$	16	−920

Explicit:

Recursive:

2. The table below represents the terms of a geometric sequence. Determine explicit and recursive functions for this sequence.

n	1	8
$f(n)$	81920	5

Explicit:

Recursive:

3. Solve for x.

a) $\left(\dfrac{1}{9}\right)^x = 243$

b) $6^{x+7} = \dfrac{1}{216}$

c) $\dfrac{1}{8} = 32^x$

4. Eric and Tommy each received $1000 from their families when they were born. Eric's parents put his money in a savings account that earns 5.7% interested compounded annually. Tommy's parents put his money in an account that earns $100 per year.

a) Write explicit and recursive equations to represent Eric's situation.

b) Write explicit and recursive equations to represent Tommy's situation.

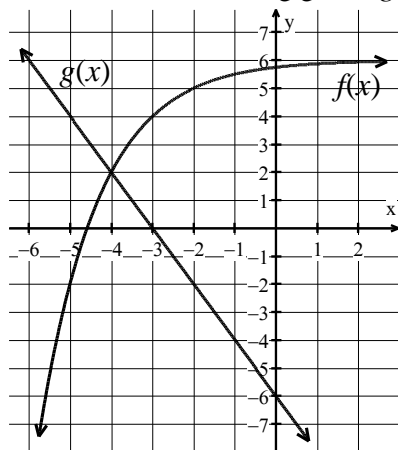c) Both boys can withdraw their money when they turn 18 years old. Who will have the least of money at that time?

Explicit:

Explicit:

Recursive:

Recursive:

5. Answer the following given $g(x) = -2x - 6$ and $g(x) = -(0.5)^{x+2} + 6$.

a) Where is $f(x) = g(x)$?

b) Where is $f(x) > g(x)$?

c) What is $f(-3) - g(-2)$?

d) What is $g(x) = -4$?

e) Identify the interval where $g(x)$ is steeper than $f(x)$.

f) Complete the table, and then graph $f(x) + g(x)$.

x	$f(x)$	$g(x)$	$f(x) + g(x)$
−6			
−5			
−4			
−3			
−2			
−1			
0			
1			

6. Write a linear equation that models the situation.
a) Jorge placed a large coordinate grid on the ground to track the jumping direction of his frogs. Jorge put one frog on the point (–60, 140) and it leaped to (42, –98).

b) A new cake shop sold 70 cakes on the first day, and every day thereafter, it sold 50 more cakes.

7. Determine if these relationships are functions and justify your reasoning.
a) A person's name versus their driver license number.

b) The number of seashells washed up on shore throughout a week.

8. The following graph of function $f(x)$ tracked the various elevations (in hundreds of feet) as Mike and Steve hiked through the Anza-Borrego Desert.
a) Identify the domain and range explain what they mean within the context of the problem.

b) In this situation, what does $f(5)$ mean? Next, determine the value.

c) In this situation, what does $f(x) = 1000$ mean? Determine the value.

Elevation (100s of ft)
Time (in hours)
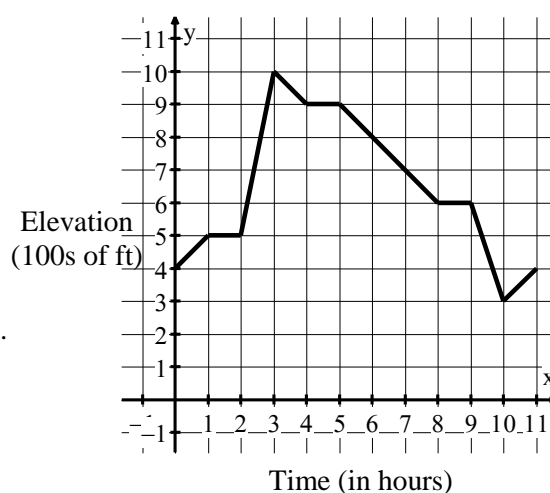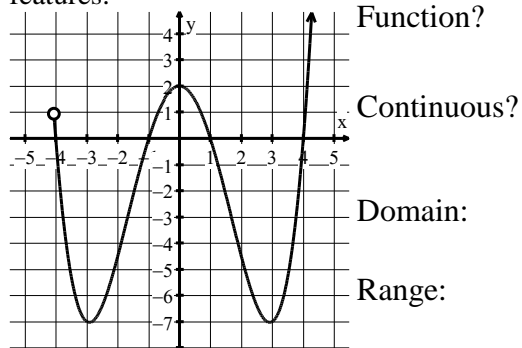
d) Find the indicated values.
  a) $f(4)$ b) $f(6)$ c) $f(x) = 300$, $x =$

9. Given the graph, identify the key features.

Function?

Continuous?

Domain:

Range:

x intercept(s):   y intercept(s):

Minimum: Maximum:

Increasing Interval(s):   Decreasing Interval(s):

10. Leeza and Allaine both inherited $4,000,000 from their deceased uncle. Leeza spends 75% of her inheritance each month, and Allaine spend $500,000 each month. Write explicit functions for each person and then graph the situation.