

**Module 1 Review Worksheet**

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

1. Given each table,

- Determine whether the function is linear, exponential, or quadratic, and explain how you know.
- Determine both the recursive and explicit formulas.

a)

$x$	$f(x)$
-1	243
0	81
1	27
2	9

Type of function & justification:

Explicit:

Recursive:

b)

$x$	$f(x)$
-3	43
-2	18
-1	3
0	-2

Type of function & justification:

Explicit:

Recursive:

c)

$x$	$f(x)$
12	93
13	102
14	111
15	120

Type of function & justification:

Explicit:

Recursive:

2. A spitball is shot up into the air. Its height above the ground is given by the function  $d(x) = 96x - 16x^2$ . Use this equation to complete the following.

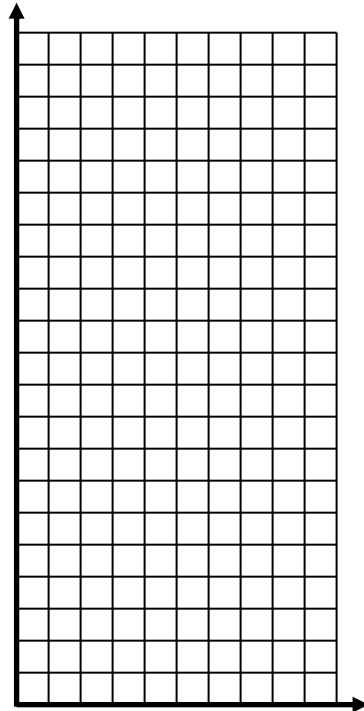
a) Complete the table for the height of the spitball.

Time(seconds)						
Height (feet)						

c) At what time(s) is the height of the spitball zero feet?

d) What is the maximum height of the spitball? At what time does it happen? Explain.

b) Graph the height of the spitball.



3. Multiply each of the following expressions.

a)  $(2x - 7)(3x - 6)$

b)  $(4b - 3)^2$

c)  $(2c + 5)(3c^2 - 6c + 11)$

4. Solve each of the following equations. Show your work.

a)  $\frac{2}{3}x - 3 = 11$

b)  $\left(\frac{1}{6}\right)^{7x} = 1296$

c)  $4^{2x-3} + 7 = 9$

d)  $3(2x - 7) = -5(x - 11)$

e)  $243^{5x+1} = \left(\frac{1}{27}\right)^x$

f)  $7 - (2x + 8) = x + 12 - 3x + 1$

5. On October 1<sup>st</sup> your parents asked you to clean your room, so you threw all of your dirty clothes (12 items) under your bed. You were so happy how your new cleaning program worked out that you continued to throw 5 more items of dirty clothes under your bed each day thereafter.

a) Linear, exponential, or quadratic? Explain.

b) Explicit function:

c) Recursive function:

d) Someone finally calls the police to report a suspicious smell coming from you house when you have 92 items of clothes under your bed. What day of the month will this occur?

6. To combat the smell coming from your room, your little sister opened up two Barbie Super-Sparkly-Glitterific air fresheners on October 3<sup>rd</sup>. She then had to triple the number of air fresheners she opened each day thereafter.

a) Linear, exponential, or quadratic? Explain.

b) Explicit function:

c) Recursive function:

d) How many air fresheners did she open on October 11<sup>th</sup>?