

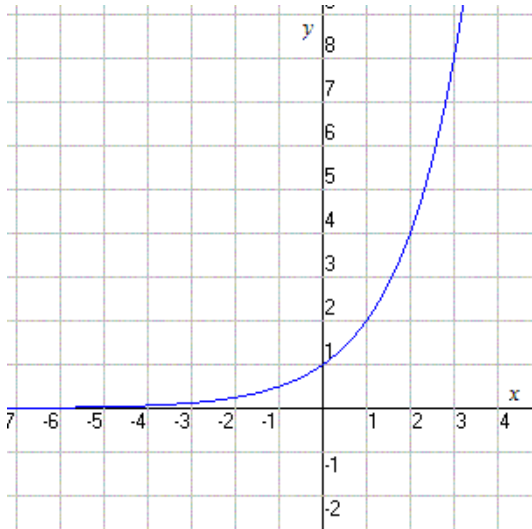
Name: _____

Period: _____

Mod 2 Test Review

- (a) Determine whether the following are linear, exponential, or neither.
- (b) Determine whether each relationship is continuous or discrete
- (c) Determine the domain and write it in set notation

1.



2.

Rounds	1	2	3	4	5
Number of players left	64	32	16	8	4

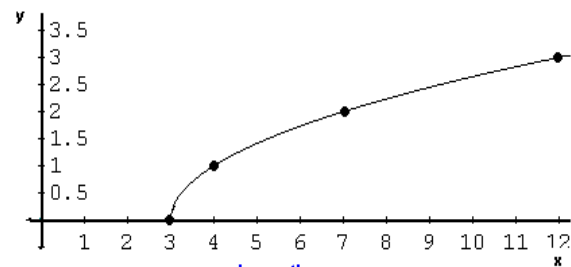
3. $f(x) = 2(5)^x$

4. $f(x) = 4x + 3$

5.

x	f(x)
3	-9
-7	-7
-2	-8
13	-11

6.



7.

x	f(x)
1	3
2	6
6	96
8	384

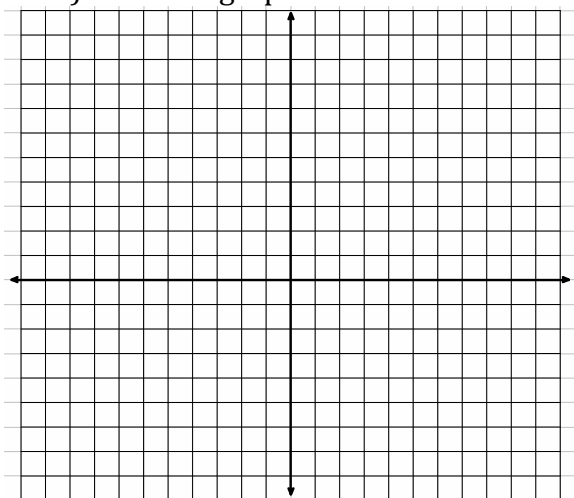
8. A water purification plant just installed a new pump that cleanses 4 gallons of water per minute. Suppose the plant already had 500 gallons of pure water when they replaced the pump and that the pump runs all day every day.

- a) Create a table

Name: _____

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b) Create a graph



c) Create an explicit function

d) Explain each piece of your function in part (c)

e) Is the relationship linear or exponential?

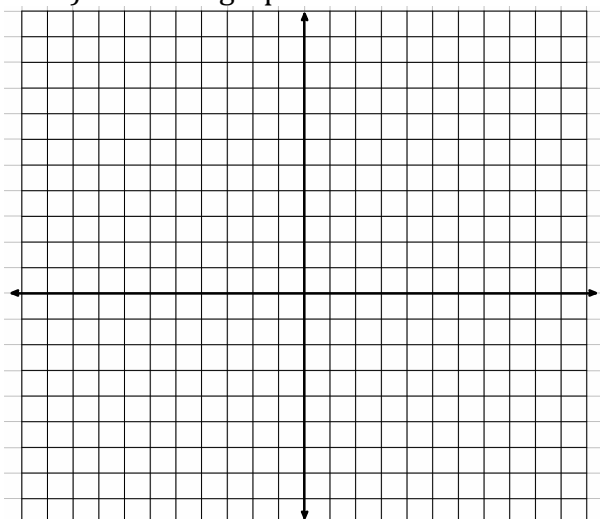
f) Is the relationship discrete or continuous?

g) Is the relationship a sequence? Why or why not? If so, what type?

9. A sequence that starts with 2 and has a constant ratio that increases by 75% each term.

a) Create a table

b) Create a graph



Name: _____

Period: _____

- c) Create an explicit function
 - d) Explain each piece of your function in part (c)
 - e) Is the relationship linear or exponential?
 - f) Is the relationship discrete or continuous?
 - g) What type of sequence is the relationship above?
-

Determine whether the following relationships are linear, exponential, or neither. State the slope if linear or constant ratio if exponential.

10. $y = \frac{3}{4}x + 5$

16. $f(0) = 2, f(n) = f(n - 1) \cdot 5$

11. $2x + 5y = 10$

17. $y - 7 = 3(x - 2)$

12. $y = 2 \cdot 5^x$

18. $f(0) = 2, f(n) = f(n - 1) - \frac{2}{5}$

13. $f(x) = 3 \cdot 4^{x-1}$

19. $y = -2x + 6$

14. $6x + 3y = 18$

20. $y - 8 = \frac{3}{4}(x - 4)$

15. $f(x) = 3x + 1$

21. $f(x) = x^3$

22. What are the requirements for a relationship to be a sequence?

23. Determine whether the following relationships are sequences or not. If so, state what type.

(a)

x	F(x)
-2	3
-1	5
0	7
1	9
...	...

(b)

x	F(x)
0	3
0.5	8
1	13
1.5	18
...	...

(c)

x	F(x)
0	3
1	12
2	21
3	30
...	...

Name: _____

Period: _____

Let $f(x) = 4(6)^x$ and $g(x) = 7x - 10$

24. Is $f(x)$ linear or exponential? Create a table for $f(x)$ below:

x	f(x)
0	
1	
2	
3	

25. Is $g(x)$ linear or exponential? Create a table for $g(x)$ below:

x	g(x)
0	
1	
2	
3	

26. Create a graph that fits the following descriptions to help you answer #27 below.

(A) Create a graph with both a linear increasing function, and an exponential increasing function:	(B) Create a graph with both a linear increasing function, and an exponential decreasing function:	(A) Create a graph with both a linear decreasing function, and an exponential decreasing function:

27. Which relationship, out of linear or exponential, will have a greater rate of change in the long run?

28. Determine whether the following relationships are linear, exponential, or neither.

(a)

x	f(x)
-1	2
1	4
4	6
5	8
9	10

(b)

x	f(x)
0	3
1	6
3	24
7	384
9	1536

(c)

x	f(x)
0	-6
1	-12
2	-24
4	-48
6	-96

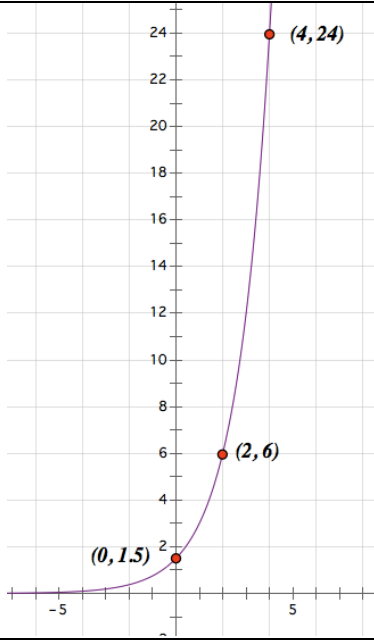
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If you want bonus on the test, think about these...

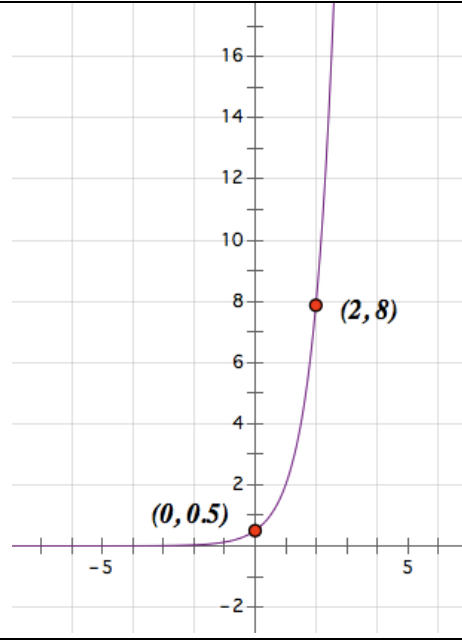
29. Write the equation of $f(x)$ shown in the graph below.

- Then find the average rate of change of $f(x)$ when x is between 1 and 4.
- Draw in the secant line (the line that you are finding the slope of when x is between 1 and 4).



30. Write the equation of $g(x)$ shown in the graph below.

- Then find the average rate of change of $g(x)$ when x is between 0 and 2.
- Draw the secant line (the line that you are finding the slope of when x is between 0 and 2).



31. Let $h(x) = 3 \cdot 7^x$. Find the average rate of change of $h(x)$ when x is between -1 and 5.