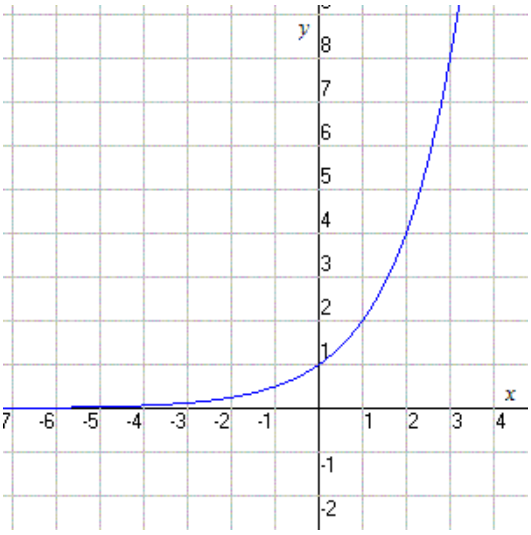
Mod 2 Test Review Name _____ Period _____

(a) Determine whether the following are linear, exponential, or neither.
(b) Determine whether each relationship is continuous or discrete
(c) Determine the domain
(d) Determine if the relationship a sequence? Why or why not? If so, is it a geometric or arithmetic sequence?

1.



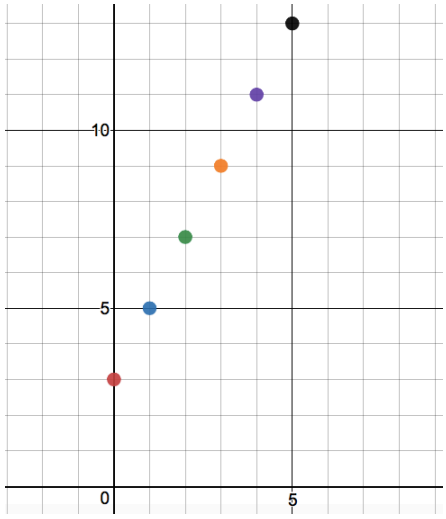
2.

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

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

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

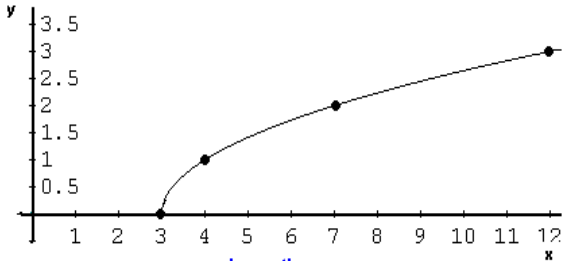
5.



6.

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

7.



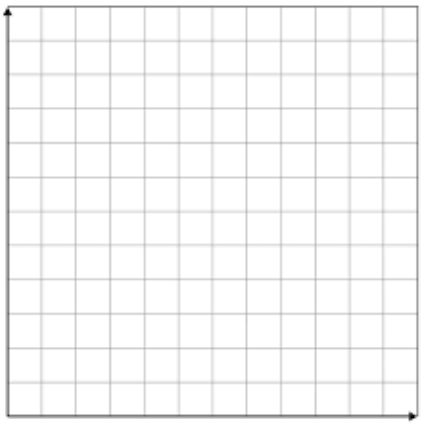
8.

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

9. 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 that represents this situation. Make sure you label your table.

b) Create a graph that represents this situation. Make sure you label your graph.



c) Write an explicit function to show the gallons of pure water available after x minutes.

d) How does each part of your function in part (c) connect to the story problem?

e) Is the relationship shown above linear or exponential?

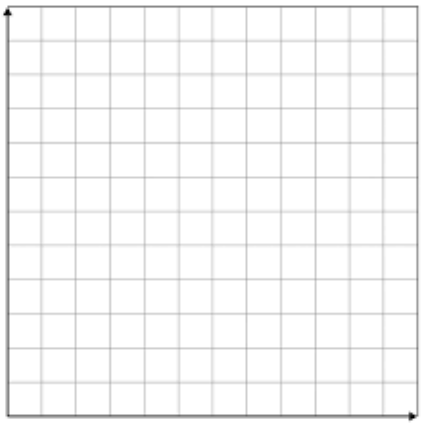
f) Is the relationship shown above discrete or continuous?

g) Is the relationship a sequence? Why or why not? If so, is it a geometric or arithmetic sequence?

10. You are currently 50,000 dollars in debt! You want to get out of debt as fast as you can so you make a plan to pay off 10% of the debt at the end of each month.

a) Create a table to model this situation.

b) Create a graph to model this situation.



c) Create an explicit function for this situation.

d) How does each part of your function in part (c) connect to the story problem?

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, is it a geometric or arithmetic sequence?

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

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

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

13. $2x + 5y = 10$

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

15. $y = 2 \cdot 5^{x-1}$

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

17.

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

18.

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

19.

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

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

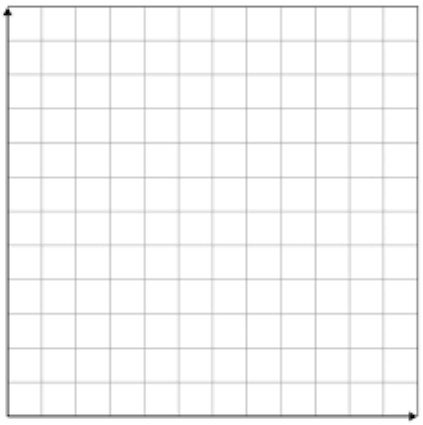
20. Is $f(x)$ linear or exponential? Create a table for $f(x)$ below:

x	f(x)
0	
1	
2	
3	

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

x	g(x)
0	
1	
2	
3	

22. On the graph shown below, create an increasing linear and an increasing exponential function.



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

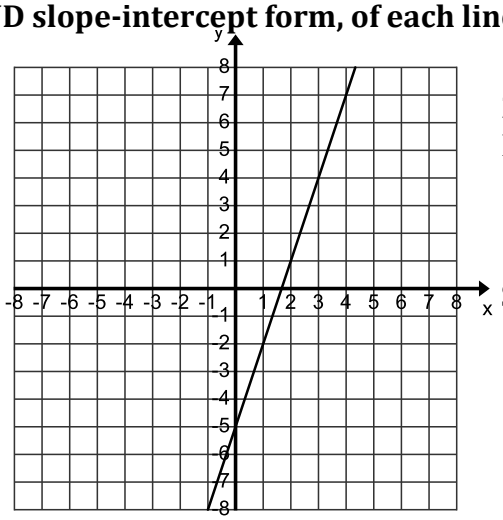
Write the equation, in point-slope form AND slope-intercept form, of each line.

24.

X	Y
2	7
5	13
9	21
11	25
15	33

Point-Slope _____

Slope-Intercept _____



25.

Point-Slope

_____

Slope-Intercept

_____

26) What is the equation of a line through the point (1, 3) that has a slope of -2?

Point-Slope: _____ Slope-Intercept: _____

27) What is an equation for the line that passes through the coordinates (-1, 2) and (7, 6)?

Point-Slope: _____ Slope-Intercept: _____

Write an explicit equation for the following exponential relationships.

28

X	Y
1	8
2	32
3	128
4	512
5	2048

Explicit Equation:

_____

29) An exponential relationship that goes through the point (0, 3) and has a constant growth factor of 4

Explicit Equation:

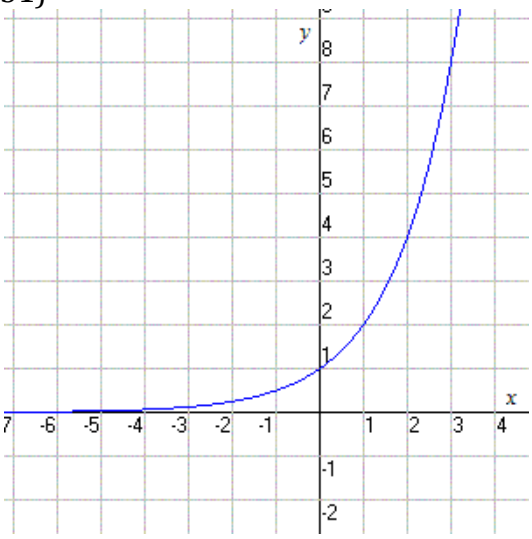
_____

30) An exponential relationship that that passes through the points (1, 1) and (3, 64)?

Explicit Equation:

_____

31)



Explicit Equation:

_____