

## Module 2 Practice Test

### Part I: Matching

Match each equation on the left with its correct form on the right.

\_\_\_\_\_ 1.  $f(x) = -4x + 3$

a. Point – Slope Form

\_\_\_\_\_ 2.  $f(1) = 3, f(n) = f(n - 1) + 4$

b. Slope

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

c. Slope-Intercept

\_\_\_\_\_ 4.  $m = \frac{y-y}{x-x}$

d. Linear Recursive

\_\_\_\_\_ 5.  $f(1) = 4, f(n) = 3f(n - 1)$

e. Linear Explicit

\_\_\_\_\_ 6.  $y - 3 = 2(x + 4)$

f. Exponential Recursive

\_\_\_\_\_ 7.  $f(x) = 3 + 4(x - 1)$

g. Exponential Explicit

### Part II: Multiple Choice

8. Which of the following words do you *know for certain* describes the following function? Some of the items might apply, select the item that we are certain applies.

$$f(x) = 5 \cdot \left(\frac{1}{2}\right)^x$$

a. Discrete

b. Continuous

c. Linear

d. Exponential

9. Which of the following words do you *know for certain* describes the following function? Some of the items might apply, select the item that we are certain applies.

x	y
2	-8
5	-23
9	-43
-2	12

a. Linear

b. Exponential

c. Increasing

d. Continuous

10. Aaron can run a mile every eight minutes. He begins running at 3:00 PM and intends to run for one hour. Is the distance that Aaron runs discrete or continuous? Is it linear or exponential?

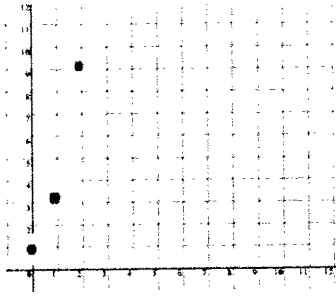
a. Discrete and linear

b. Continuous and linear

c. Discrete and exponential

d. Continuous and exponential

11. Which of the following words do you know for certain describes the following function?



a. Linear

b. Discrete

c. Continuous

d. Exponential

12. Find the rate of change.

Time (min)	Distance (m)
x	y
0	88
2	44
3	22
5	-22

a. decrease of 22 m/min

b. decrease of 22 min/m

c. increase of 22 m/min

d. decrease of 20 m/min

$$\frac{44-88}{2-0} = \frac{-44}{2} = -22$$

Part III: Short Answer

13. Write an explicit equation for the table. Is it linear, exponential or neither?

Month	\$
0	1
1	2
2	4
3	8

exp  $y = 1(2)^x$

14. Write an explicit equation for table of values. Is it linear, exponential or neither?

x	4	5	6	7
y	-13	-16	-19	-22

$y = 3(x-4) - 13$

15. Find the geometric mean and use it to fill in the blanks. Show your work.

x	8	9	10	11	12	13
f(x)	-6	+18	-54	162	-486	1458

$x-3$

16. Find the arithmetic mean and use it to fill in the blanks. Show your work.

x	4	5	6	7	8	9
F(x)	-15	8	31	54	77	100

$+23$

115

17. Given the following two points: (-10, -5) and (-8, 7)

a) Find the slope  $\frac{7 - (-5)}{-8 - (-10)} = \frac{12}{2} = 6$

b) Find point-slope form  $y = 6(x + 10) - 5$

c) Find slope-intercept form  $y = 6x + 60 - 5$   
 $y = 6x + 55$

18. Solve the following equations, show work:

a.)  $-4x + 7 = 43$   
 $-4x = 36$   
 $x = -9$

b.)  $\frac{2}{3}(x - 12) = 40$   
 $\frac{2}{3}x - 8 = 40$   
 $\frac{2}{3}x = 48$   
 $x = 72$

c.)  $-2(x - 5) + 5 = -3x + 14$   
 $-2x + 10 + 5 = -3x + 14$   
 $-2x + 15 = -3x + 14$   
 $x = -1$

**Part IV: Performance**

19. My grandfather has a golf ball collection of 1,200 golf balls. Each Saturday he goes to various shops and yard sales to add 50 new golf balls to his collection.

$y = 50x + 1200$

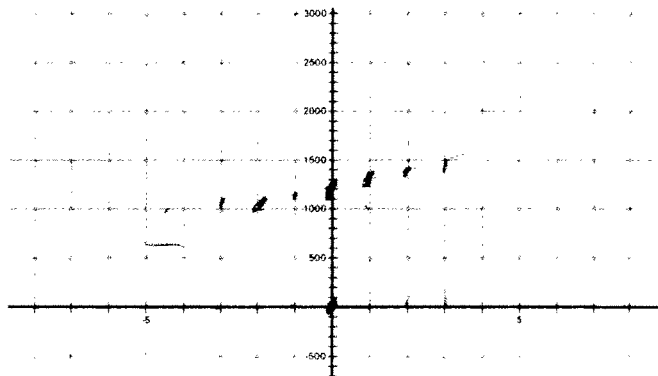
a. Complete the table - Consider week zero to be the week that the count was at 1,200.

Weeks (prior to or after)	Number of golf balls
-3	1050
-2	1100
-1	1150
0	1,200
1	1250
2	1300
3	1350

b) Write an explicit equation.

$y = 50x + 1200$

c. Draw a graph



d. Is the data discrete or continuous?

discrete can't have 1/2 of a golf ball

$\frac{52}{50}$   
 $2600$

e. How many golf balls will my grandfather have one year from today? (52 Saturdays from now)

$y = 50(52) + 1200$   
 $2600 + 1200 = 3800$

f. If this pattern has been happening for a long time, how many weeks ago did my grandfather start collecting golf balls?

$0 = 50x + 1200$   
 24 weeks ago

20. The mold on a piece of bread has an area of  $0.2 \text{ mm}^2$ . The area of mold on the bread triples every day, and the surface area of the bread is  $9900 \text{ mm}^2$ .

$$\begin{array}{r} 0.2 \\ \times 3 \\ \hline 0.6 \end{array}$$

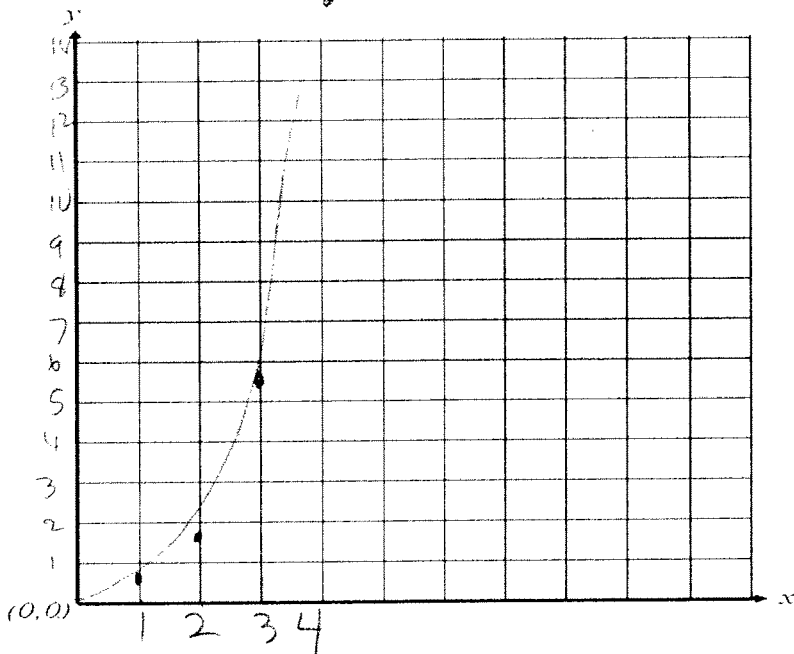
a. Complete the table – Let day zero equal the day the area was equal to  $0.2 \text{ mm}^2$

Time (days)	Area of mold ( $\text{mm}^2$ )
0	0.2
1	0.6
2	1.8
3	5.4
4	16.2
5	48.6

b. Write an explicit equation.

$$y = 0.2(3)^x$$

c. Draw a graph, label axes. (Graph until you run out of x or y space)



d. Is the data **discrete** or **continuous**?

Cont

e. How much area does the mold cover on day 5?

48.6

f. About how long will it take for the mold to cover the bread? Give your answer to the nearest tenth of a day.

(9-10)

$$9900 = 0.2(3)^x$$

$$49500 = 3^x$$