**Linear Relations- RETEST**

**Outcomes:**

|  |  |
| --- | --- |
| **I can generalize a pattern using linear equations and verify.**  |  |
| **I can graph and analyze linear equations to solve problems.**  |  |

**OUTCOME 1: I can generalize a pattern using linear equations and verify.**

1. In the equation P= 7n + 6, determine the value of P when n= 8

P = 7(8) +6

=56 + 6

=62

2) Which of the following equations would solve P= 12 when n= 3?

1. P=4n + 6 b. P= 24 - 3n c. P= 4(6-n) d. P=4(n+6)

3) Determine an **equation** that relates the number of circles, C, to the figure number, n.



|  |  |
| --- | --- |
| **n** | **C** |
| 1 | 1 |
| 2 | 3 |
| 3 | 5 |
| 4 | 7 |

 C = 2n-1

equation : \_\_\_\_\_\_\_\_\_\_\_\_\_

4) The pattern in this table continues. Determine an equation that related the term value to the term number.



1. W = 4s + 2 b. W = 6s c. w=3s + 2 d. w= 2s + 4

5) Complete the table of value.

 Y = -*x* + 4



 4 3 2 1

6) Mary paid $400 to join a workout team. She pays an additional $20 every time she uses the club’s facilities. Choose the equation that describes Mary’s total cost for working out.

* 1. C= 20n - 400 c. C= 400n + 20
	2. C = 20n + 400 d. C= 20 ÷ n + 20

7) The cost to rent a pump is $30, plus $6.40 per hour. Calculate the cost of renting the equipment for 6 hours.

Cost = 6.4h + 30

= 6.4(6) + 30

= 38.4 + 30

=68.40

8. Kristina created this toothpick pattern.



* 1. Make a table of values for the number of toothpicks in each figure.

|  |  |
| --- | --- |
| Figure #(x) | Number of Toothpicks(y) |
| 1 | 6 |
| 2 | 11 |
| 3 | 16 |
| 4 | 21 |

* 1. Use your table to **determine the slope**.

Slope = Rise/Run

= 5/1

=5

* 1. Write an **equation** in y=mx+b form to represent the relation between the figures and the toothpicks.

Toothpicks = 5n+1

* 1. Which figure will require 61 toothpicks?

61 = 5n+1

60 = 5n

12 = n

|  |  |
| --- | --- |
| **I can graph and analyze linear equations to solve problems.**  |  |

**OUTCOME 2: I can graph and analyze linear equations to solve problems.**

1.  Create a table of values for the linear relation y = 0.5x - 2.

-2

-1

0

1

2

* 1. Use your table of values to graph the relation.



* 1. Use your graph, table, or equation to predict the value of y when x = 5, 7, and 12.

5, 0.5

7, 1.5

12, 4

2. Will the following graph have a positive or negative slope?



Positive

3. What is the slope in the equation y = 8x + 16 ?

8

4. What is the slope in the equation 3x + 4y = 8 ?

4y = -3x +8

y = ¾(x) + (8/2)

y = ¾(x) + 4

Slope = ¾

4. What is the slope of a line containing (-2, 4) and (4, 10).

Slope = Rise/Run

= (10-4)/ (4- -2)

= 6/6

=1

5. This graph represents a linear relation. Determine the value of y when x= -4



y= 4\_\_\_\_\_\_\_

6. Find the equation of the line showed on the graph. (y = mx + b)

Slope = Rise/Run

 = (1-4) / (0- - 4)

= -3/4

b = Y intercept

Line intercepts y axis at (1)

Y=mx+b

Y = ¾ x + 1



Equation \_\_\_\_\_\_\_\_y = 5/2 x+ 5\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. Find the equation of the line showed on the graph. (y = mx + b)



Equation \_\_\_\_\_\_\_Same as question 5\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. Geoffrey has $130 in his savings account. Each week he withdraws $20.

* 1. Write an equation that relates the amount of money in his account, *A* dollars, after *W* weeks.

A = 130 – 20w

* 1. Create a table of values for the relation, then graph the relation. Use the w values given.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| W | 0 | 1 | 2 | 3 | 4 | 5 |
| A |  130 | 110 | 90 | 70 | 50 | 30 |



 1 2 3 4 5 6 Weeks

C. At what point will Geoffrey have $50.00 in his account?

At the 4 week mark