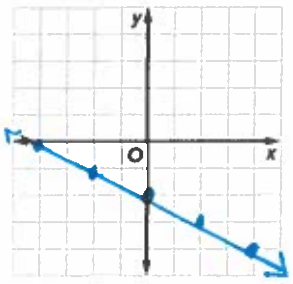
Unit 4 Test Review

1. Graph $-x - 2y = 4$.



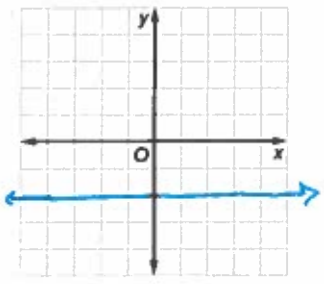
$-x - 2y = 4$

$+x \quad +x$

$\frac{-2y}{-2} = \frac{4+x}{-2}$

$y = -2 - \frac{1}{2}x$

2. Graph $y = -2$.



3. What is the slope of the line $y = 4$?

0

4. Mr. Smith is draining his pool to have it cleaned. At 8:00 A.M., it had 2000 gallons of water and at 11:00 A.M. it had 500 gallons left to drain. What is the rate of change in the amount of water in the pool?

-500 gallons per hour

Slope → $\frac{\Delta y}{\Delta x} = \frac{\Delta \text{ Gallons}}{\Delta \text{ hours}} = \frac{-1500}{3 \text{ hours}}$

5. What is the slope between (-4, 3) and (2, 5)?

$\frac{\Delta y}{\Delta x} = \frac{2}{6} = \boxed{\frac{1}{3}}$

6. A teacher buys pencils for their classroom. The equation $y = -8x + 100$ represents the number of pencils, y, the teacher has over x days.
   a. What does the slope represent?

      Loses 8 pencils each day

   b. What does the y-intercept represent?

      Started w/ 100 pencils

7. Write $8x - 4y = -24$ in slope-intercept form.

$-8x \quad -8x$

$\frac{-4y}{-4} = \frac{-24-8x}{-4} \quad -4$

$y = 6 + 2x$

$y = 2x + 6$

$\frac{-4y}{-4} = \frac{-24}{-4}$

8. Describe translations of the graph of $g(x) = (2x) + 3$ in relation to the parent function.

- Horizontal compress
- Up 3

Unit 4 Test Review

9. The graph of g(x) = -1/2(x) is a vertical compress and a reflect over x-axis

10. The graph of g(x) = (0.75x) is a horizontal stretch

11. Determine whether each sequence is an arithmetic sequence.

a. 2, 6, 10, 14, ... [(A) Arithmetic Sequence (B) Not an Arithmetic Sequence]

b. 1.25, 2.5, 5, 6.25, ... [(A) Arithmetic Sequence (B) Not an Arithmetic Sequence]

c. 4, 10, 16, 22, ... [(A) Arithmetic Sequence (B) Not an Arithmetic Sequence]

d. 18, 12, 6, 0, ... [(A) Arithmetic Sequence (B) Not an Arithmetic Sequence]

e. 2.5, 5, 7.5, 10, ... [(A) Arithmetic Sequence (B) Not an Arithmetic Sequence]

12. Determine the next 3 terms in the arithmetic sequence 3, 10, 17, 24, 31, 38, 45

7 7 7

13. Write an equation that describes the nth term of the arithmetic sequence -2, -1.5, -1, -0.5,...

(0, -2.5)

$a_0 = -2.5$

$y = 0.5x - 2.5$

$a_n = 0.5n - 2.5$

d: 0.5

14. Christa has a box of chocolate candies. The number of chocolates in each row forms an arithmetic sequence, as shown in the table.

Row	1	2	3	4
Number of Chocolates	3	6	9	12

3 3 3

d = 3

Create an equation to find the number of chocolates in the 9th row.

$a_n = 3n$

$a_9 = 3(9) = 27$

Unit 4 Test Review

15. Graph $f(x) = \begin{cases} -2 & \text{if } x < 1 \\ x + 1 & \text{if } x > 1 \end{cases}$

=

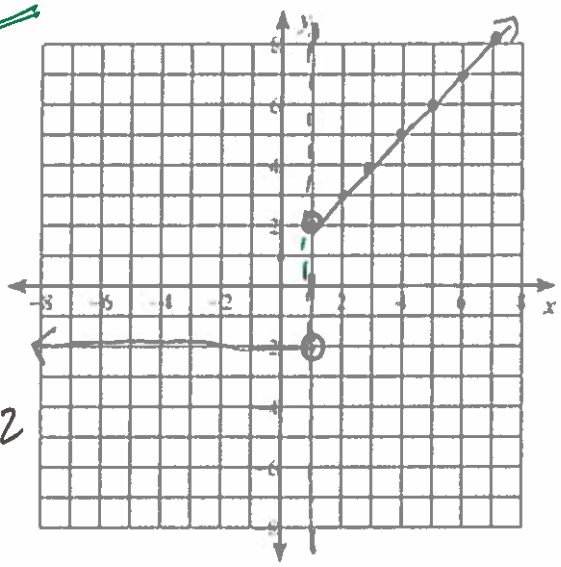
x=1

y = -2

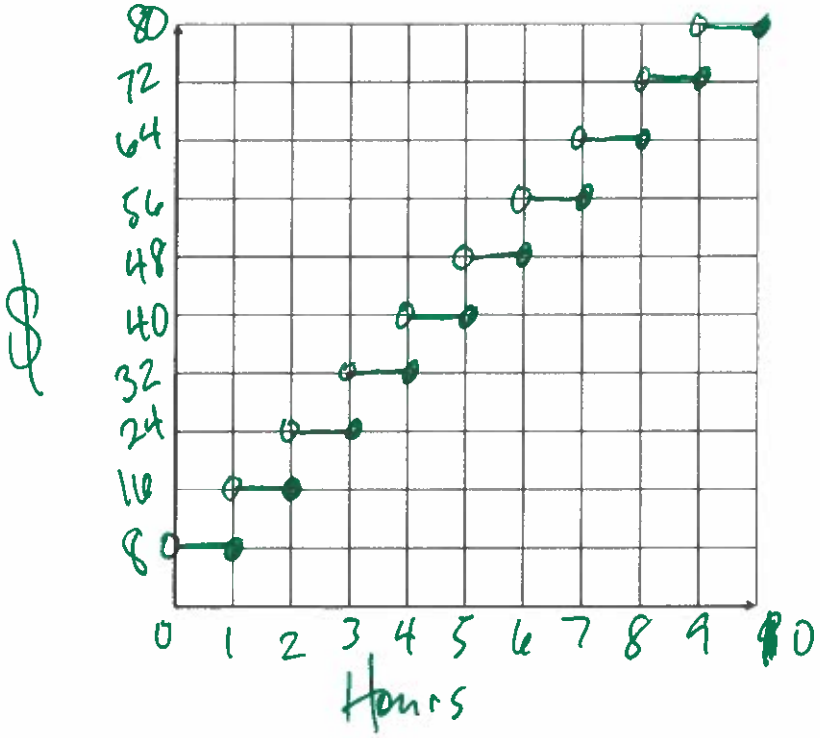
y = x + 1

D: $x \neq 1$

R: $y > 2$ & $y = -2$



16. Steve is renting a bike. The bike rental shop charges $8 per hour or any fraction thereof. Make a graph to represent the possible costs of renting a bike.



17. State the transformations of the function g(x) = -0.45|x + 6| + 10

- Vertical compress
- Reflect over x-axis
- Left 6
- Up 10