Name: Key Date: _____

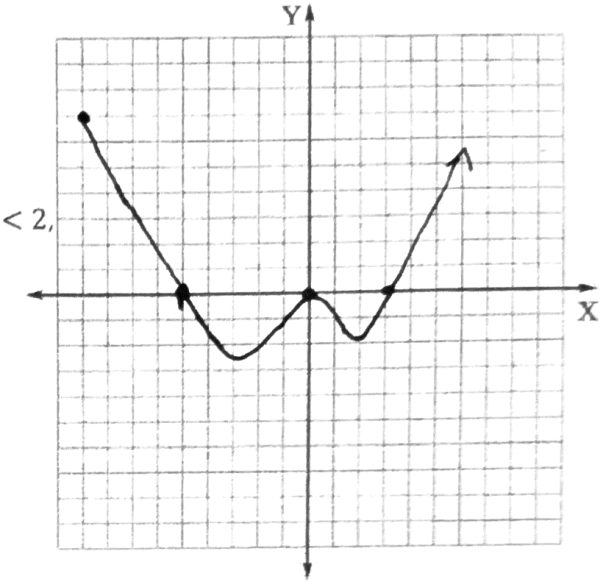
# Unit 1 Quiz 2: Study Guide

1. Draw a graph that fits the description given.

x-intercept: (-5, 0), (0,0) (3,0)

y-intercept: (0,0)

The graph is decreasing from $-9 < x < -3$,
then increasing from $-3 < x < 0$, decreasing from $0 < x < 2$,
and then increasing from $2 < x < \infty$




2. What is the difference between continuous and discrete?

Continuous has graphs with connected points that form lines or curves

Discrete graphs have only distinct points.

a. Provide one example of a continuous situation and one example of a discrete situation. Continuous → Miss Niemiec's height over a period of time

Discrete → The bags of chips miss Niemiec purchases at the store and how it effects her grocery budget

3. Find the average rate of change for the functions given: $f(x) = -4x + 7$, $g(x) = -x^2 + 4$, and $h(x) = \frac{x}{4} - 5$

a. For f(x), when x=3 and x=9

$f(3) = -4(3) + 7 = -12 + 7 = -5$

$f(9) = -4(9) + 7 = -36 + 7 = -29$

$(3, -5)\ (9, -29)$

$\frac{-5-(-29)}{3-9} = \frac{24}{-6} = \boxed{-4}$

b. For g(x), from $-3 \le x \le 5$

$g(-3) = -(-3^2) + 4 = -(9) + 4 = -5$

$g(5) = -(5^2) + 4 = -25 + 4 = -21$

$(-3, -5)\ (5, -21)$

$\frac{-21-(-5)}{5-(-3)} = \frac{-16}{8} = \boxed{-2}$

c. For h(x), from [−4,8]

$h(-4) = \frac{-4}{4} - 5 = -1 - 5 = -6$

$h(8) = \frac{8}{4} - 5 = 2 - 5 = -3$

$(-4, -6)\ (8, -3)$

$\frac{-3-(-6)}{8-(-4)} = \frac{3}{12} = \frac{1}{4}$

$\boxed{\frac{1}{4}}$

d. For g(x), from $-5 \le x \le 5$

$g(-5) = -(-5^2) + 4 = -25 + 4 = -21$

$g(5) = -(5^2) + 4 = -25 + 4 = -21$

$(-5, -21)\ (5, -21)$

$\frac{-21-(-21)}{5-(-5)} = \frac{0}{10} = \boxed{0}$

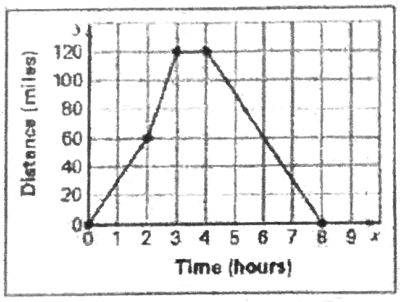
4.

The graph shows the distance (im miles) of a delivery truck from the factory.

a. What change occurs at 2 hours? What does this mean in the context of the problem?

b. What does the segment from 3-4 hours represent? Why might this happen?

c. What does the second x-intercept at 8 hours represent in the context of the problem?




a.) At hour 2, the delivery truck increases its speed. We can see this because the line gets steeper

b.) The segment from 3 to 4 represents the truck stopping because it stays 120 miles from the factory. It might be making a delivery

c.) At hour 8, the truck has returned back to the factory.

5. Graph the following function using the given domain.

Then, state the range.

$f(x) = x^2 - 1$

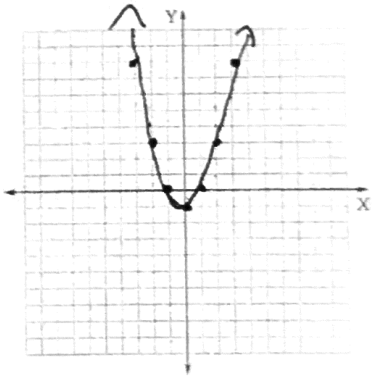
Domain: $-\infty < x < \infty$

Range: $-1 \leq y < \infty$

or

$y \geq -1$

| x | f(x) |
|---|---|
| -3 | 8 |
| -2 | 3 |
| -1 | 0 |
| 0 | -1 |
| 1 | 0 |
| 2 | 3 |
| 3 | 8 |




6. Graph the following function using the given domain.

Then, state the range.

$f(x) = -3x + 5$

Domain: $-2 \leq x \leq 3$

Range:

$-4 \leq y \leq 11$

| x | f(x) |
|---|---|
| -2 | 11 |
| -1 | 8 |
| 0 | 5 |
| 1 | 2 |
| 2 | -1 |
| 3 | -4 |