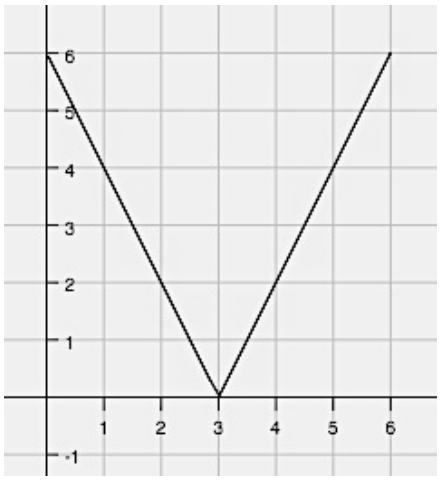
4.3 More Functions, with Features

A Solidify Understanding Task

Michelle likes riding her bike to and from her favorite lake on Wednesdays. She created the following graph to represent the distance she is away from the lake while biking.



1. Interpret the graph by writing three observations about Michelle's bike ride.

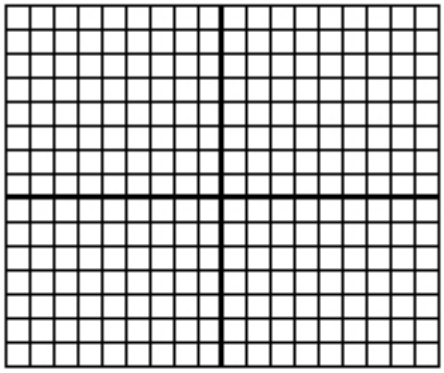
2. Write a piece-wise function for this situation, with each linear function being in point-slope form using the point (3,0). What do you notice?

3. This particular piece-wise function is called a linear absolute value function. What are the traits you are noticing about linear absolute value functions?

Part II

In this part of the task, you will solidify your understanding of piece-wise and use your knowledge of transformations to make sense of absolute value functions. Follow the directions and answer the questions below.

1. Graph the linear function $f(x) = x$



2. On the same set of axes, graph $g(x) = |f(x)|$.

3. Explain what happens graphically from $f(x)$ *to* $g(x)$.

4. Write the piece-wise function for $g(x)$. Explain your process for creating this piece-wise function and how it connects to your answer in question 3.

5. Create a table of values from [-4, 4] for *f(x)* and *g(x).* Explain how this connects to your answer in questions 3 and 4.

x	*f(x)*	*g(x)*
-4		
-3		
-2		
-1		
0		
1		
2		
3		
4		