

4.9 Horizontal Shifts

SWBAT use horizontal shifts to graph functions.

Assignments

HW31

▶ Create a table of values and graph the functions.

1. $f(x) = |x|$

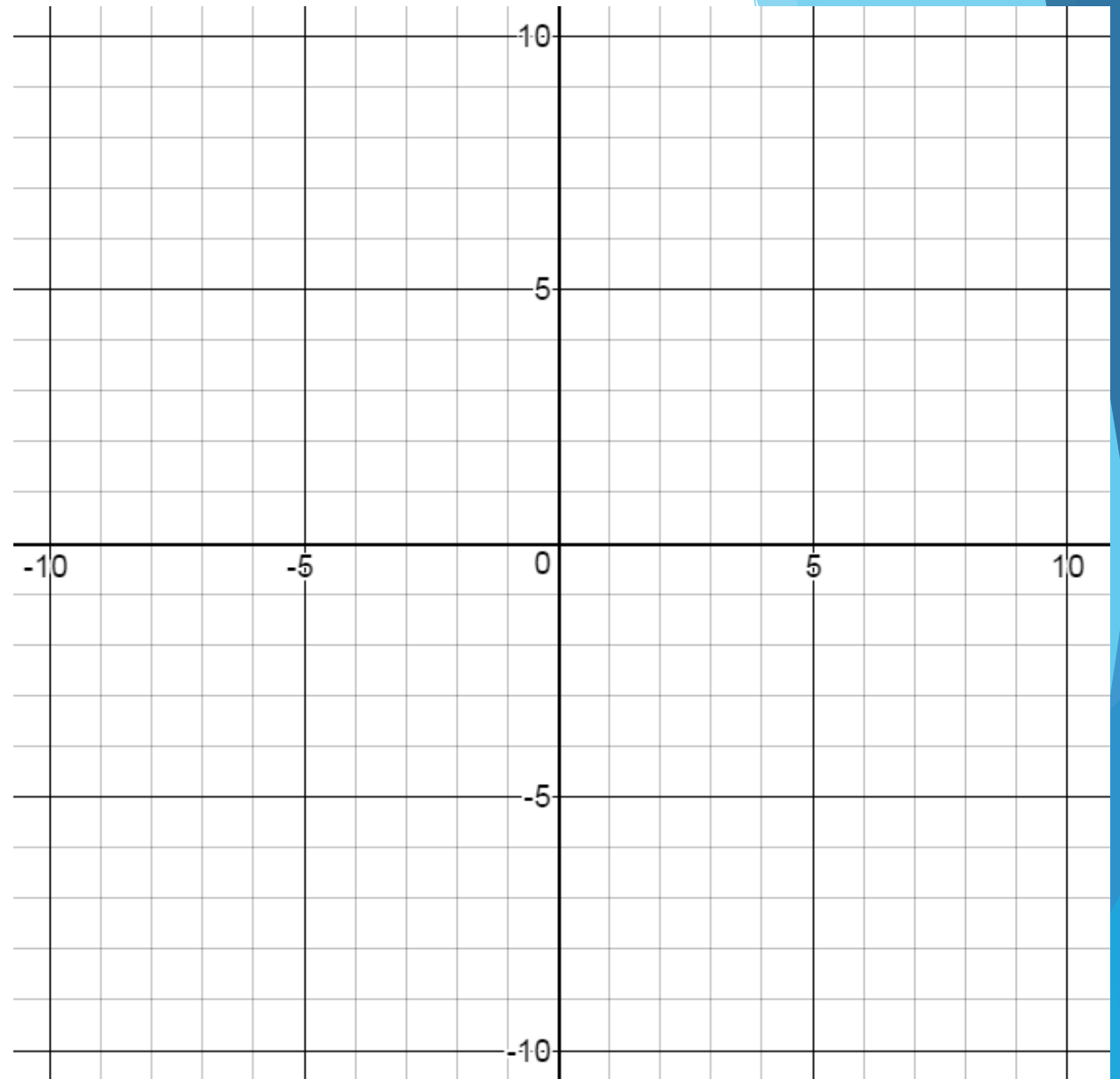
2. $g(x) = |x + 1|$

3. $h(x) = |x + 2|$

4. $n(x) = |x + 4|$

▶ What patterns do you see?

▶ When we _____ a
_____ number to the
_____, the graph
_____.



▶ Create a table of values and graph the functions.

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

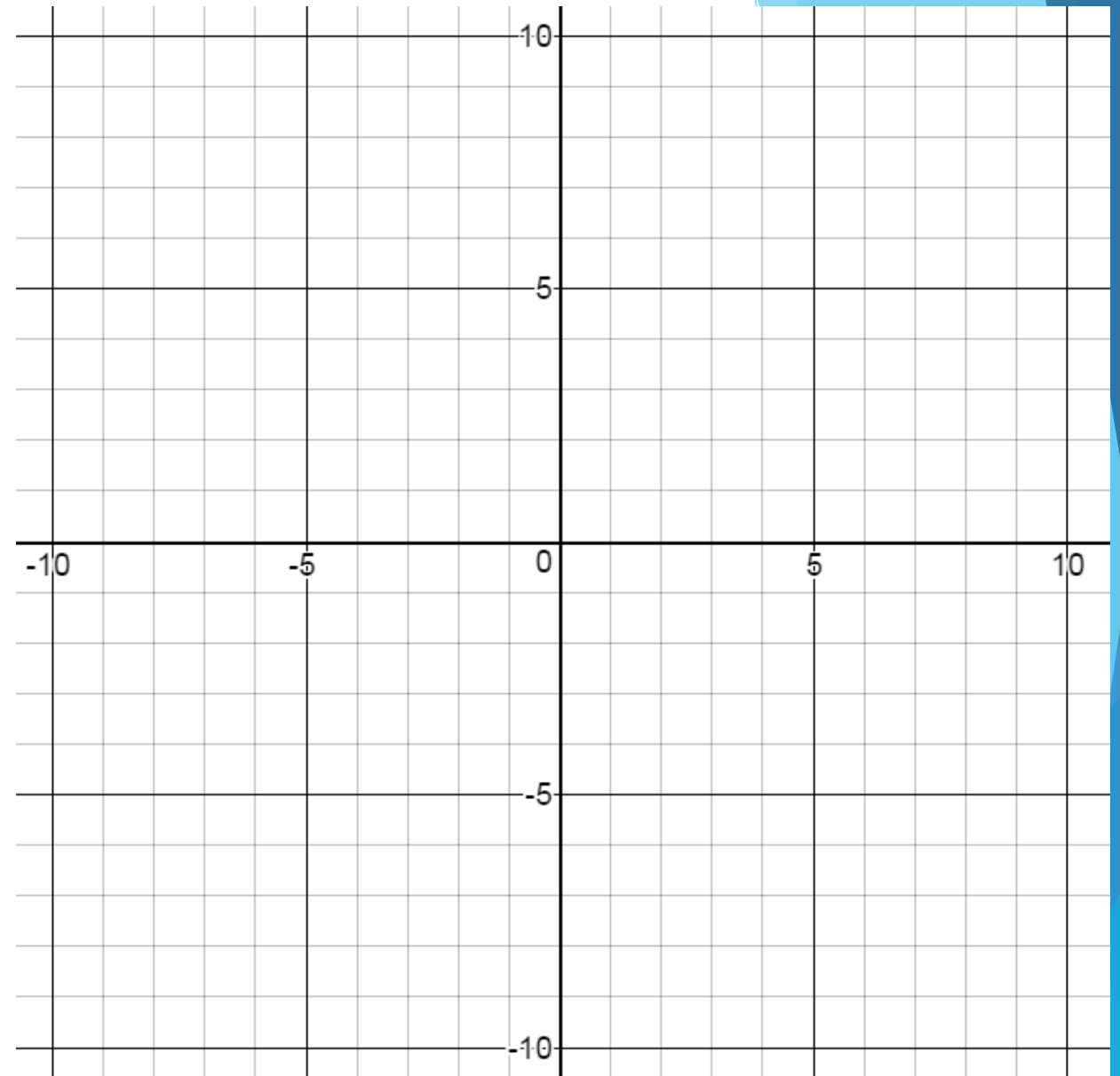
2. $g(x) = (x - 1)^2$

3. $h(x) = (x - 2)^2$

4. $n(x) = (x - 4)^2$

▶ What patterns do you see?

▶ When we _____ a
_____ number to the
_____, the graph
_____.



Horizontal Shift

▶ $f(x + k)$

- ▶ Adding a number to the input of the function results in a *horizontal shift*.
- ▶ Adding a positive number shifts the graph *left*, and adding a negative number shifts the graph *right*.

- ▶ List the parent function and predict how the graph of the function will shift.

▶ $f(x) = (x - 3)^2$

1. $g(x) = |x + 17|$

2. $n(x) = (x - 5)^2$

3. $b(x) = \sqrt{x - 6}$

4. $t(x) = \sqrt{x + 1}$

▶ List the parent function and predict how the graph of the function will shift. Then graph.

▶ $f(x) = (x - 3)^2$

1. $g(x) = |x + 17|$

2. $n(x) = (x - 5)^2$

3. $b(x) = \sqrt{x} - 6$

4. $t(x) = \sqrt{x} + 1$

5. $h(x) = (x - 2)^2 + 1$

6. $w(x) = -|x - 2| + 4$

