Transforming Functions take 2

While working in a group make sure you:

- Expect to make mistakes but be sure to reflect/learn from them!
- Are civil and are aware of your impact on others.
- Assume and engage with the strongest argument while assuming best intent.

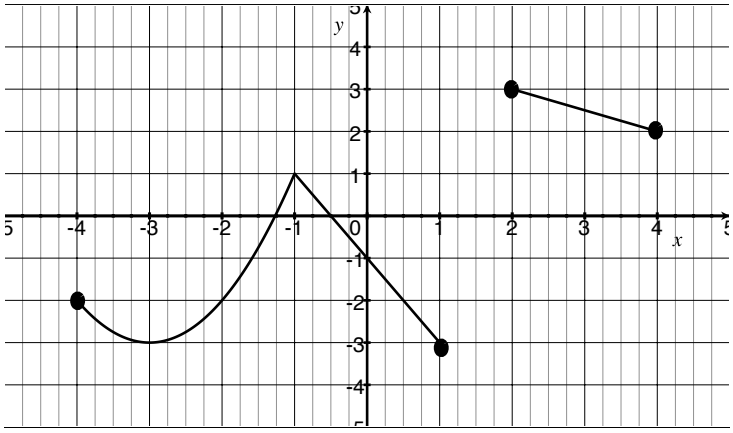
1. Suppose f is a function $a > 0$, $b > 0$, and $\alpha > 0$. Define functions v and w by

$$v(x) = f(x + b) + a \quad \text{and} \quad w(x) = \alpha f(x) - a.$$

Complete the following sentence:
The graph of v is obtained by shifting the graph of f ...

The graph of w is obtained by ...

2. The graph of a piece-wise defined function labeled g is below. To be explicit, all the pieces of the graph below make up the graph of g. Note that although the graph of g is disconnected, g passes the vertical line test so it *is* a function.
Consider the function $h(x) = g(2x)$.



(a) Find $h(2)$

(b) Find $h(\frac{1}{2})$

(c) Draw the graph of $h(x)$ also known as $g(2x)$

(d) Complete the following sentence:
The graph of h is obtained by _____ the graph of g.

3. Let $m(x) = g(\frac{1}{2}x)$. Sketch the graph of m.