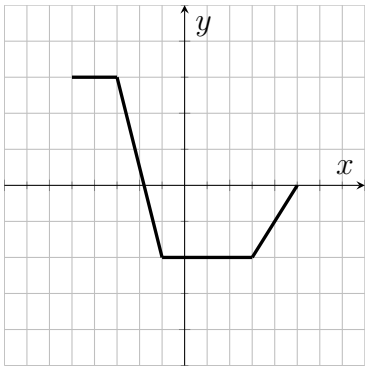
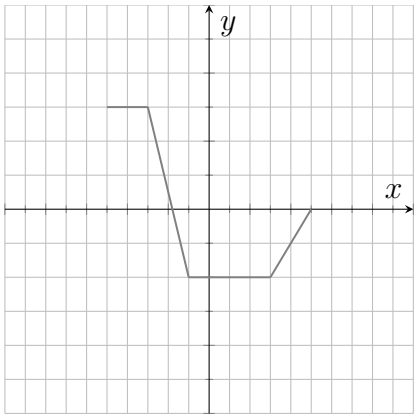
Name _____

Homework 8
Sections 1.5 & 1.6

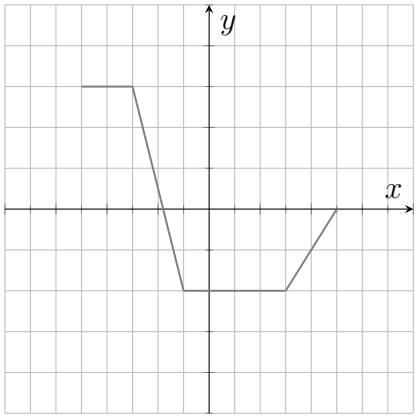
1. (2ea) Use the graph of $y = f(x)$ given below to sketch the graphs of each of the following.



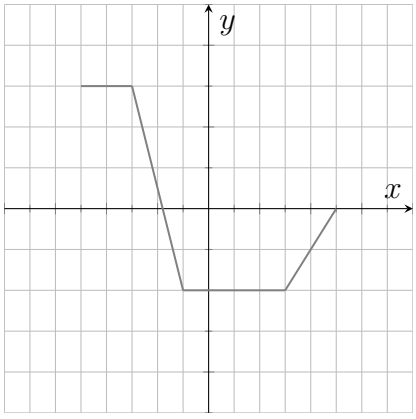
a) $y = 2f(x)$



b) $y = f(2x) - 1$



c) $y = \frac{1}{2}f(x) + 2$



2. (3) The graph of the function $g(x)$ is created by taking the graph of $f(x)$ and performing the following transformations, in the following order:

   - shifting it 4 units left
   - reflecting it across the x-axis
   - vertically expanding it by a factor of 6
   - shifting it down 8 units

   Write $g(x)$ in terms of $f(x)$.

3. (1ea) Suppose $f(12) = -4$. Determine a point which must lie on the graph of the following:

   (a) $y = -3f(x+8) - 5$ (b) $y = \frac{1}{2}f\left(\frac{4}{3}x\right)$

4. (3ea) Consider the functions $f(x) = x^2 + 3x$, $g(x) = 4x - 1$, and $h(x) = 5\sqrt{x-3}$.

   (a) Determine and simplify $(f - g)(x)$

   (b) Determine and simplify $(gf)(x)$

   (c) Determine and simplify $(f + g + h)(7)$