2. [8 points]
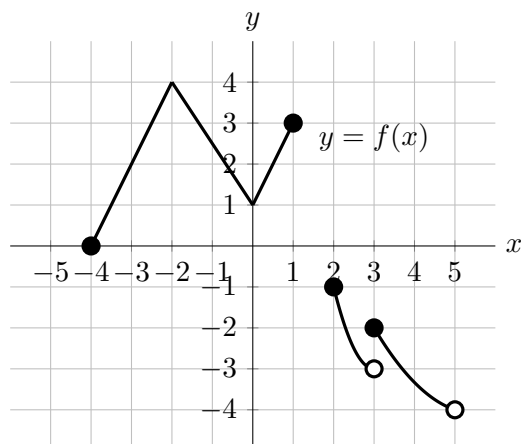
The entire graph of a function $y = f(x)$ is given to the right. Note that $f(x)$ is piecewise-linear for $-4 \leq x \leq 1$.

A different function, $g(x)$, is given in the following table.

x	-3	-2	-1	0	0.2	1	2	3
$g(x)$	5	4	1	0	-1	-2	-4	-3

a. [3 points] Find
   (i) the domain of $f(x)$ and
   (ii) the range of $f(x)$.

   Write your answers using inequalities or interval notation. Make sure to clearly label which answer is the domain and which is the range. You do not need to justify your answer.

b. [5 points] Find the following values. If you make any calculations to find your answers, include those calculations in your submission.

   (i) The average rate of change of $f(x)$ from $x = -4$ to $x = 1$
   (ii) $g(f(3))$
   (iii) All values of x so that $g(f(x)) = -2$

3. [12 points] A gardener is growing a plant.

   • Let t be the number of days after the plant first sprouts.

   • The height of the plant t days after it sprouts is $H(t)$ inches.

   • The gardener gives the plant $W(t)$ cups of water on the tth day after it sprouts.

   • When the gardener uses M cups of water, she mixes in $V(M)$ teaspoons of special plant vitamins.

Suppose that $V(M)$ and $H(t)$ have inverses.
For each of the following, give a practical interpretation of the expression in the context of the problem, or explain why the expression does not make sense in this context.

   a. [3 points] $H(6) = 3$

   b. [3 points] $V(W(4))$

   c. [3 points] $W(H(6))$

   d. [3 points] $\dfrac{H^{-1}(12) - H^{-1}(9)}{12 - 9} = 2$