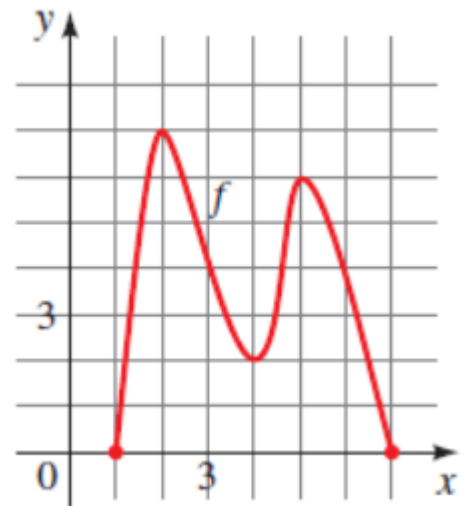
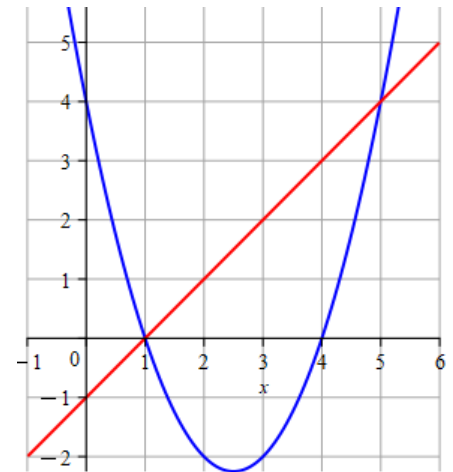


Be sure to follow [College Algebra formatting guidelines](#) in your work. We will be doing a lot more with graphing techniques in future weeks.

1. (5 pts) Refer to the figure on the right and fill in the blanks below, about $f(x)$.



- Domain =
 - Range =
 - f is increasing on
 - f is decreasing on
 - State the local maximum and minimum values. Report these values as ordered pairs, i.e., as points in the plane, like $(x, y) = (2, 3)$, where $x = 3$ is where we obtain a y -value or $f(x)$ -value of 3.
 - State the solutions of the equation $f(x) = 0$. Give your solutions as a set.
2. We show the graphs of $f(x) = x^2 - 5x + 4$ and $g(x) = x - 1$ on the same set of coordinate axes on the right. I want you to solve the equation $f(x) = g(x)$ in two ways:



- (5 pts) Using the graph at the right.
- (5 pts) Algebraically.

Give your answers in the form of a solution set, that is, a statement of the form $x \in \{2, 5\}$. Circle answers, of course.

3. (5 pts) Using the same figure on the right, fill in the following:

- $f(2) =$
- $g(3) =$
- The set of all x such that $f(x) = 4$ is...

4. (5 pts) Sketch the graph of $f(x) = x^2 - 5x - 24$, $-4 \leq x \leq 9$. State its domain and range.
5. (5 pts) What is the domain of $g(x) = \sqrt{x^2 - 5x - 24}$?
6. Let $f(x) = x^2 - 5x - 24$.
- (5 pts) Find $f(x+2)$.
 - (5 pts) Find $f(x) + f(2)$.
7. Let $s(x) = x^2 - 5x$
- (5 pts) Find the *net change* in s from $x = 1$ to $x = 5$.
 - (5 pts) Find the *average rate of change* in s from $x = 1$ to $x = 5$.
 - (5 pts) Simplify the difference quotient for s : $\frac{s(a+h) - s(a)}{h}$.