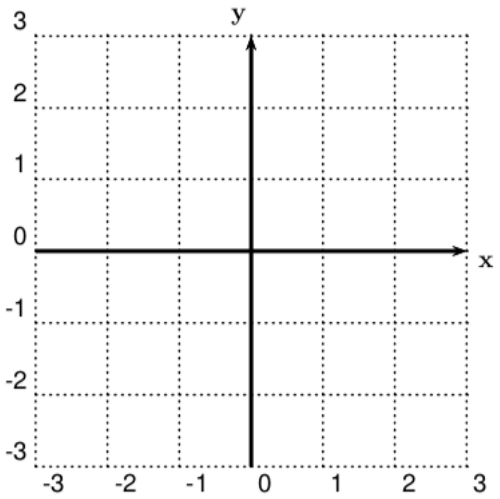
1. Draw a function that has the following properties:

   $f(x)$ has a non-removable discontinuity at $x = -2$,

   $f(-2) = 1$,

   $f(x)$ has a removable discontinuity at $x = 2$,

   $f(2)$ is undefined.



2. On what interval(s) is $g(x) = \frac{(x^2+4x+3}{x^2-9}$ continuous?
   Hint: Factor top and bottom.

3. Which of the following would you expect to be continuous? Why or why not?

   The area of the United States, as a function of time (starting 1776).

   The elevation of a woman walking along a trail, as a function of time.

   The temperature at various points of a metal rod, as a function of position along the rod.

   The number of bacteria living in an undisturbed Petri dish, as a function of time.

4. Use the Intermediate Value Theorem to show that there is a solution to $e^x = 3 - 2x$ on the interval $(0, 1)$.

5. *Determine what is wrong with the following argument:* Consider the function $h(x) = \frac{x+2}{x-3}$. Since $h(2) = -4 < 1$ and $h(4) = 6 > 1$. by IVT there must exist some $2 < c < 4$ such that $h(c) = 1$.

6. Prove that at some point of your life, your height in inches was identical to your weight in pounds.