1. For each part below, give an example of a function that satisfies the stated conditions and graph it. In each case, the domain of the function should be *all* real numbers.

   (a) $\lim_{x\to 2} f(x) = 3$ and $f(2) = 4$.

   (b) $\lim_{x\to 0} g(x)$ does not exist, and $|g(x)| < 2$ for all x.

   (c) $\lim_{x\to -1} h(x)$ exists, and its value is $h(-1) + 2$.

   (d) $\lim_{x\to 1^-} k(x) = \infty$ and $\lim_{x\to 1^+} k(x) = 0$.