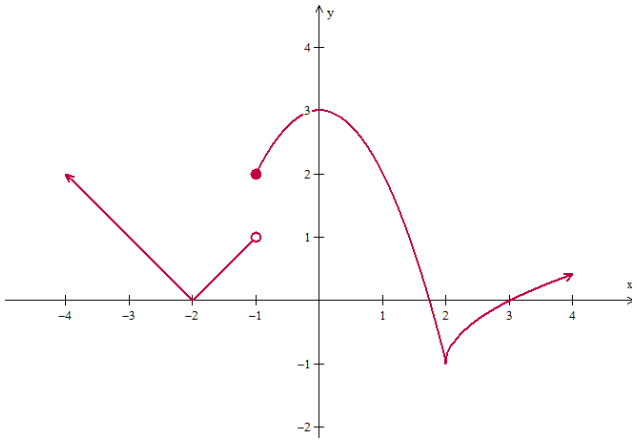
MTH 251
LAB §2.7

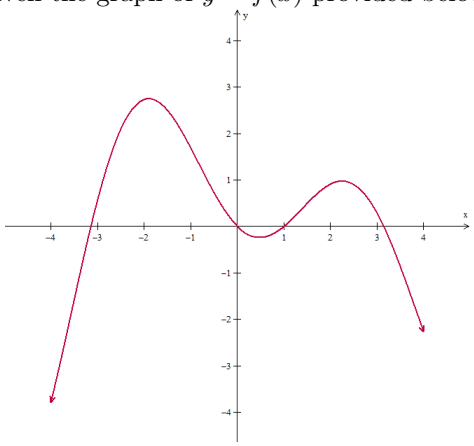
DAMIEN ADAMS

1. Use the graph of f provided below to calculate the following values.

   (a) $f(-3)$
   (b) $f'(-3)$
   (c) $\lim_{x\to -3} f(x)$
   (d) $f(-2)$
   (e) $f'(-2)$
   (f) $\lim_{x\to -2} f(x)$
   (g) $f(-1)$
   (h) $f'(-1)$
   (i) $\lim_{x\to -1} f(x)$
   (j) $f(0)$
   (k) $f'(0)$
   (l) $\lim_{x\to 0} f(x)$
   (m) $f(2)$
   (n) $f'(2)$
   (o) $\lim_{x\to 2} f(x)$
   (p) $f(3)$
   (q) $f'(3)$ *(Estimate)*
   (r) $\lim_{x\to 3} f(x)$



2. Given the graph of $y = f(x)$ provided below, sketch a graph of $y = f'(x)$.



3. Sketch the graph of $f(x) = \cos x$. Below your graph, sketch the graph of $f'(x)$ by first identifying when $f'(x) = 0$ and then identifying when f' will be positive and when it will be negative.
4. Let $f(x) = x^2 - x + 1$.
   a. Use the definition of derivative to calculate $f'(x)$.
   b. What is the domain of f?
   c. What is the domain of f'?
5. Let $g(t) = \sqrt{t}$.
   a. Use the definition of derivative to calculate $g'(x)$.
   b. What is the domain of g?
   c. What is the domain of g'?