

The Derivative Function

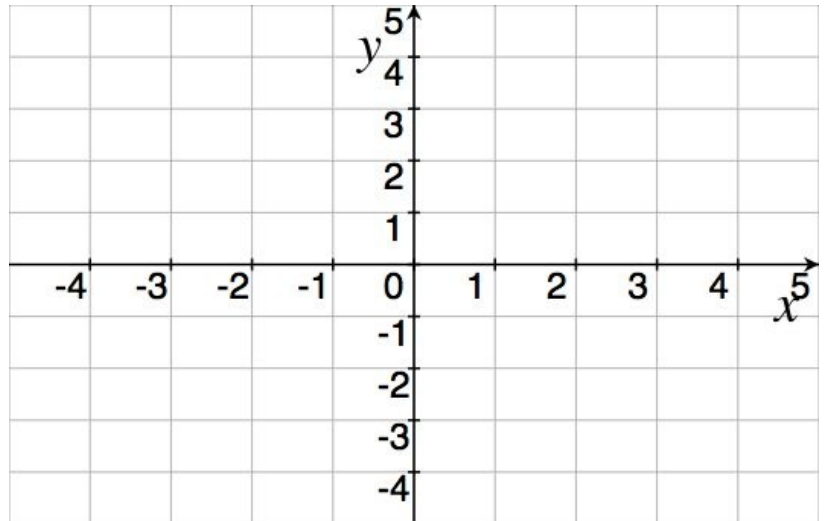
1. Graph a function f that satisfies the following conditions:

(a) $\lim_{x \rightarrow -2} f(x) = -\infty$

(b) f is continuous
on the interval $(0, 3)$

(c) $f'(1)$ does not exist

(d) $f'(4) = -2$



2. Consider the function f defined graphically in problem 1. Find the equation of the line that is tangent to f at $x = 4$.

3. For each function g below, use the algebraic definitions of a derivative to find $g'(x)$.

$$g(x) = x^{-2}$$

$$g(x) = x - 4.9x^2$$