

1. Suppose  $f'(a)$  exists for some function  $f$ . What is the “new, improved” formula we developed in class for approximating  $f'(a)$ ?
2. What is the formula we've developed for  $\frac{d}{dx} b^x$  ?
3. Using the answer to problem (2), what is the slope of the graph of the function  $f(x) = 2.5^x$  at  $a = 3.5$ ?
4. Using  $h = 0.01$ , what is the approximation given by the formula in problem (1) to the answer to problem (3)?
5. What is the formula we found for the derivative of  $\log_b(x)$ ?
6. At what  $x$  coordinate on the graph of  $y = \log_3(x)$  is the slope exactly 1?