

Math 1a. §2.7. Derivatives Worksheet

Fall 2005

1. Sketch the graph of a function for which $f(0) = 0$, $f'(0) = 3$, $f'(1) = 0$, and $f'(2) = -1$.

2. Find $f'(a)$ if

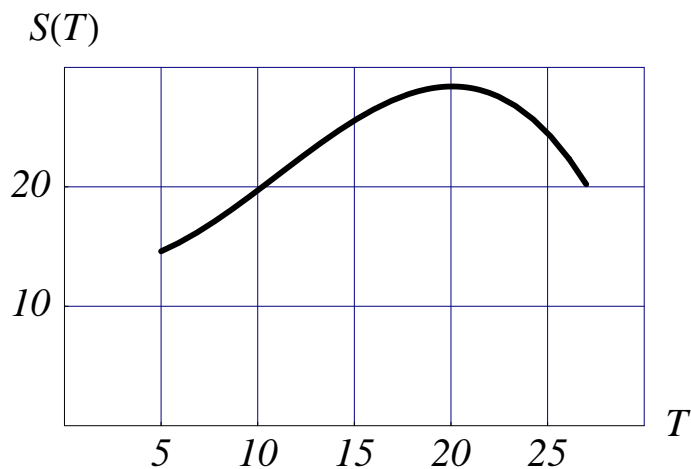
$$f(t) = \frac{2t + 1}{t + 3}.$$

3. The following limit is the derivative of some function f at a number a ,

$$\lim_{h \rightarrow 0} \frac{\sqrt[4]{16+h} - 2}{h}$$

State such an f and a .

4. The graph below shows the influence of the temperature T (in degrees Celsius) on the maximum sustainable swimming speed S (cm/s) of Coho salmon.



- (a) What is the meaning of the derivative $S'(T)$? What are its units?
(b) Estimate the values of $S'(15)$ and $S'(25)$ and interpret them.