

- The population of the world, P , in billions of people, is a function $P = f(t)$ of the year t .
 - What does $f(1990) = 5.295$ mean?
 - What does $f'(1990) = 0.086$ mean?
 - What does $f'(1990) / f(1990) = 0.016$ mean?
 - Estimate the world population in 1992.
- The function $C(r)$ is the total cost in dollars of paying off a car loan borrowed at an interest rate of $r\%$ per year.
 - What does $C(4.0) = 14000$ mean?
 - What does $C'(4.0) = 2800$ mean?
 - What does $C'(4.0) / C(4.0) = 0.2$ mean?
 - Estimate the cost if the interest rate was 3.5%.
- Assume $g(v)$ is the fuel efficiency, in miles per gallon, of a car going at a speed of v miles per hour.
 - What is the practical meaning of $g(55) = 24.7$?
 - What is the practical meaning of $g'(55) = -0.54$?
 - What is the practical meaning of $g'(55) / g(55) = -0.022$?
 - Estimate the fuel efficiency if 60 mph is maintained.
- The quantity (in pounds) of a gourmet ground coffee that is sold by a coffee company at a price of p dollars per pound is $Q=f(p)$.
 - What is the meaning of the derivative $f'(8)$?
 - What are the units of $f'(8)$?
 - Would $f'(8)$ be positive or negative?
- Let $T(t)$ be the temperature ($^{\circ}\text{F}$) t hours after midnight.

t	0	2	4	6	8	10	12	14
T	73	73	70	69	72	81	88	91

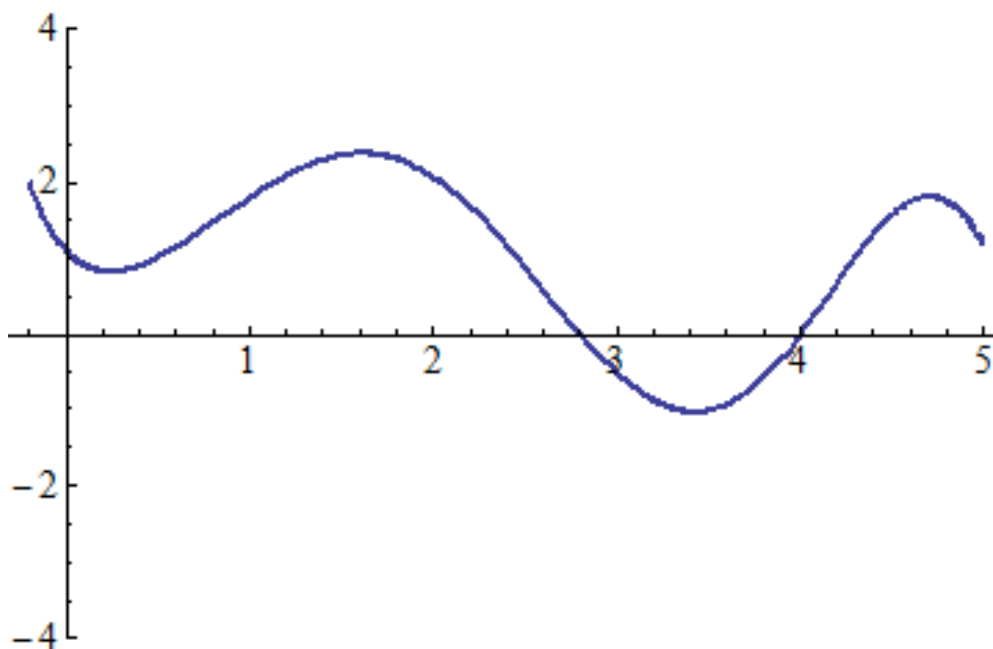
 - What is the meaning of $T'(10)$?
 - What is an estimate for $T'(10)$?
 - What is an estimate for $T'(9)$?

Math 211, Derivative Review

6. A function f is decreasing and concave down, $f'(3) = -2$, and $f(3) = 5$.
- Sketch a graph of f .

- Estimate $f(2)$. Give two values you are sure $f(2)$ is between.

7. Suppose f is defined by the graph. Graph f' .



8. The following is a graph of the derivative of f . Sketch a graph of the original function.

