**Supplement 5 Review**

This review is not all inclusive. You are expected to know how to do all the problems in the homework.

Functional Notation/Translation

1. Know how to translate to functional notation:
   (a) $f(x)$= 'the $y$-coordinate of the $f$ graph at the value $x$'.
   (b) $f(0)$ = 'the $y$-intercept'
   (c) $x$+BLAH = 'BLAH units after $x$.'
   $x-$BLAH = 'BLAH units before $x$.'
   (d) $t$ to $t+3$ gives the interval starting at $t$ and ending 3 units later.
   (e) 5 to $5+h$ give the interval starting at 5 and ending $h$ units later.
   (f) $f(b)-f(a)$ = 'change in height of the $f$ graph from $x=a$ to $x=b$.'
   (g) $\frac{f(x)}{x}$ = 'slope of the diagonal line to the $f$ graph at $x$.'
   (h) $\frac{f(b)-f(a)}{b-a}$ = 'slope of the secant line to the $f$ graph from $x=a$ to $x=b$.'
   (i) $\frac{f(b)-f(0)}{b-0}$ = 'slope of the secant line to the $f$ graph from $x=0$ to $x=b$' (slope since the beginning).
2. Here are some standard situations/examples you often encounter:
   (a) Find a 5-minute interval when the rate of change of $D(t)$ is 30.
   TRANSLATION: Find $t$ and $t+5$ such that $\frac{D(t+5)-D(t)}{5}=30$.
   (b) Find a time when the overall rate of change of $P(t)$ is 44.
   TRANSLATION: Find $t$ such that $\frac{P(t)-P(0)}{t}=44$.
   (c) How long after $t=8$ do you have to go before $f(x)$ goes up by 100?
   TRANSLATION: Find $h$ such that $f(8+h)-f(8)=100$.
   (d) Find two times, 7 minutes apart, such that the value of $g(t)$ at the second time is double the value of $g(t)$ at the first.
   TRANSLATION: Find $t$ and $t+7$ such that $g(t+7)=2g(t)$.
3. In class we did many more examples. And you can find a full table of examples posted online. You need to get comfortable with functional notation, it's an essential tool for the rest of this course and beyond.