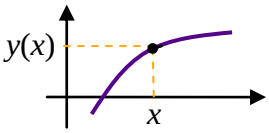
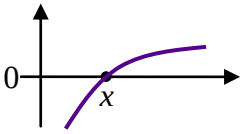
Lesson 8.7 – Modeling Accumulated Change with the TI-84

In Lesson 7.3, we discussed how to analyze the rate of change and inflection of a graph on the TI-84 using the options in the CALCULATE menu. In this lesson, we will focus on accumulated change. Press **[2ND] [TRACE]** to view the CALCULATE menu.

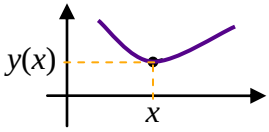
`1:value` Input x.
Output $y(x)$. (height)



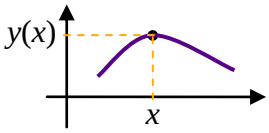
`2:zero` Input lower and upper bounds, and an initial guess.
Output an x such that $y(x) = 0$. (x-intercept, root)



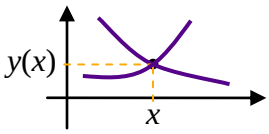
`3:minimum` Input lower and upper bounds, and an initial guess.
Output the point at which y has a local minimum.



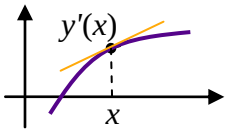
`4:maximum` Input lower and upper bounds, and an initial guess.
Output the point at which y has a local maximum.



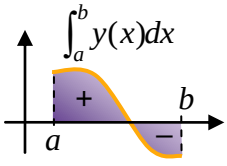
`5:intersect` Input two curves and an initial guess.
Output the intersection point.



`6:dy/dx` Input x.
Output $y'(x)$. (slope, derivative)



`7:∫f(x)dx` **Net area is the definite integral of $y(x)$:**
Input lower and upper limits of integration, a and b.
Output $\int_a^b y(x)dx$.



Total area is the definite integral of $|y(x)|$:
Use option 7 with the absolute value function $|y(x)|$. Press **[2ND] [0] [ENTER]** or **[MATH] [▶] [ENTER]** to obtain the absolute value function.