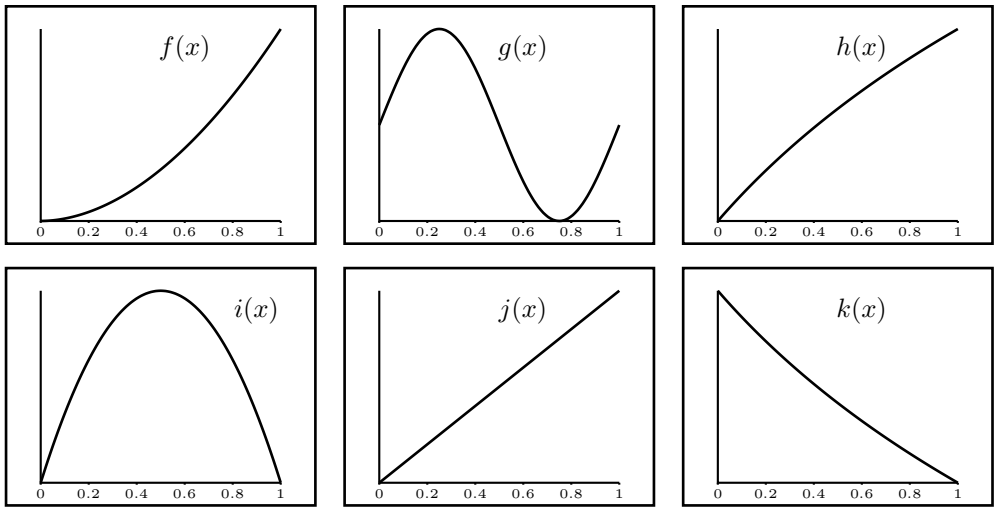
3. (12 pts) Below are the graphs of several functions $f(x)$, $g(x)$, $h(x)$, $i(x)$, $j(x)$, and $k(x)$. Do not assume that the $y$-axis scales on these graphs are equal or even comparable. We have calculated LEFT(6), RIGHT(6), TRAP(6), and MID(6) for four of these six functions. Label each column with the name of the function estimated in that column.

| Function: | $j(x)$ | $h(x)$ | $f(x)$ | $g(x)$ |
|---|---|---|---|---|
| LEFT(6): | 64.2 | .328 | .255 | 80.0 |
| RIGHT(6): | 65.8 | .444 | .421 | 80.0 |
| TRAP(6): | 65.0 | .386 | .338 | 80.0 |
| MID(6): | 65.0 | .388 | .331 | 80.0 |




Consider the rightmost column, with all the estimates the same. Since LEFT(6) = RIGHT(6), it can't be increasing or decreasing, which eliminates $f$, $h$, $j$, and $k$. Since TRAP(6) = MID(6), it can't be entirely concave up or concave down, which eliminates $i$. So it's $g$. In all of the other columns, LEFT(6) < RIGHT(6), which eliminates $k$ (deceasing, so LEFT(6) > RIGHT(6)) and $i$ ($i(0) = i(1)$, so LEFT(6) = RIGHT(6)). That leaves $f$, $j$, and $h$, and we can tell the difference between them by their concavity, which dictates the relationship between MID(6) and TRAP(6).