## HINTS:

## So, you're only looking at these hints because you tried really hard to solve the problems and got stuck. Right?

- [2] If you set  $\Delta x = \frac{\pi}{n}$ , you will need to factor the argument of the sine to get  $a + i\Delta x$  to appear. You can avoid that by setting  $\Delta x$  to a different value, but you have to make a slightly different change to compensate as well.
- [4] Use the properties of definite integrals, geometry, and the relationship between definite integrals and areas.
- [5] Consider the bounds on  $\sin x$  on the interval  $\left[\frac{\pi}{6}, \frac{\pi}{2}\right]$ .
- [7] Use the Fundamental Theorem of Calculus Part 1, and many theorems and definitions from Math 1A (applications of derivatives).
- Use the Fundamental Theorem of Calculus Part 1, of course, and don't forget the chain and product rules. Also, substitute x = 1 as soon as you get an expression for g''(x) (no need to simplify g''(x) first).
- [9] Differentiate both sides of the equation with respect to x.
- [11] Watch out for the change of sign in the velocity in part [b]. Use algebraic sign analysis on v(t), like the algebraic sign analysis you did in Math 1A on f'(x) or f''(x) when you wanted to know where f(x) was increasing/decreasing or concave up/down.
- [12] Use the properties of the definite integral, along with *u*-substitution.

  And remember that the name of the variable in the integral is irrelevant in a definite integral.
- [13] Use the properties of definite integrals, geometry, the relationship between definite integrals and areas, and a powerful theorem from late in the chapter.