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 Δx 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).

[8] 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.