Problem 1: (11 points) Consider the function \( f(x) = (x - 3)^2 \) on the interval \([2,5]\).
(a) Find the average value \( f_{\text{avg}} \) of the function on the given interval.

(b) Find a number \( c \) such that \( f(c) = f_{\text{avg}} \)

Problem 2: (14 points) Set up, but do not evaluate, an integral for the volume of the solid generated by rotating the region bounded by \( y = \sin x \) and \( y = \cos x \) from \( x = \frac{\pi}{4} \) to \( x = \frac{5\pi}{4} \) about
(a) \( y \)-axis.

(b) The line \( y = -1 \)