1. (4 pts) Sketch the region enclosed by the curves
   
   \[ y = \tan x, \quad y = 2\sin x, \quad -\frac{\pi}{3} \leq x \leq \frac{\pi}{3} \]

   and find its area.

2. (3 pts) Set up (BUT DO NOT EVALUATE) an integral for the volume of the solid obtained by rotating the region bounded by \( y = x^2, \ y = 6x - 2x^2 \) about \( x = -1 \).

3. (3 pts) Find all numbers \( b \) such that the average value of \( f(x) = \sqrt{x} \) on the interval \([0, b]\) is 6.
Instructions: Show Your Work!

1. (4 pts) Sketch the region enclosed by the curves $y = \cos \pi x$, $y = 4x^2 - 1$
   and find its area.

2. (3 pts) Set up (BUT DO NOT EVALUATE) an integral for the volume of the solid obtained by rotating the
   region bounded by $x = -3y^2 + 12y - 9$, $x = 0$ about $x = -1$.

3. (3 pts) Let $f(x) = 3x^2 - 2ax + b$, where $a \neq 1$. Find the value of $b$ if the average value of $f$
   over the interval $[1, a]$ is 4.