

Name _____

You have 15 minutes for this quiz – no calculators allowed.

1. (4 points) Determine the average value of the function $f(x) = 5 \sin\left(\frac{x}{2}\right)$ on the interval $[0, 2\pi]$. Simplify your answer as much as possible.

2. (3 points) Let \mathbf{R} be the region bounded by the graphs of $x = (y - 2)^2 + 1$, $x = 0$, $y = 0$, and $y = 4$. Set up, but do not evaluate, a definite integral which represents the volume of the solid obtained when \mathbf{R} is revolved around the x -axis.

3. (3 points) Let \mathbf{R} be the region bounded by the graph of $y = 3xe^{-0.02x^2}$ and the x -axis on the interval $[0, 15]$. Set up, but do not evaluate, a definite integral which represents the volume of the solid obtained when \mathbf{R} is revolved around the y -axis.