Instructions. This quiz will be graded for accuracy, out of 10 points. Calculators, books, notes and suchlike aides to gracious living are not permitted. Make sure to show all your work for full credit.

1. **(5 points)** Find the average value of the function $f(x) = \sqrt{x}$ on the interval $[0, 4]$.

2. **(5 points)** Using the method of cylindrical shells, set up, BUT DO NOT EVALUATE, an integral which calculates the volume of the solid generated by revolving the region enclosed by the curves $y = 4x - x^2$ and $y = 3$, about the line $x = 1$. 