1. (2 points) A spring has a natural length of 2 m. A force of 24 N stretches the spring to a length of 2.4 m. Starting at its natural length, how much work will it take to stretch the spring to a length of 2.6 m?

2. (2 points) Find the average value of the function \( f(x) = 5 \sin \left( \frac{x}{2} \right) \) on the interval \([0, 2\pi]\).
3. (3 points) Let $R$ be the region bounded by the $x$-axis and the graph of $y = x^3 - 9x$ on the interval $[0, 3]$. Set up, but do not evaluate, a definite integral for the volume of the solid obtained when $R$ is revolved around the line $x = 5$.

4. (3 points) An inverted conical tank has a 2 foot radius at the top and is 6 feet high. It is filled to a height of 5 feet with olive oil weighing $57 \text{ lb/ft}^3$. Set up, do not evaluate, a definite integral which represents the amount of work that it takes to pump the oil to a point 1 foot above the top rim of the tank.