7. Evaluate $\int \int_R \sin(y^3) \, dA$, where $R$ is the region bounded by $y = \sqrt{x}$, $y = 2$, and $x = 0$.

\[
\int \int_R \sin(y^3) \, dA = \int_0^2 \int_0^{\sqrt{x}} \sin(y^3) \, dy \, dx
\]

\[
= \left[ -\frac{\cos(y^3)}{3} \right]_0^2 \int_0^2 \sin(y^3) \, dy
\]

\[
= -\frac{\cos(8)}{3} + \frac{1}{3} = \frac{1}{3}(1 - \cos 8)
\]

8. Consider the solid which is bounded by $x + 3y + 6z = 12$ and the three coordinate planes. Find the volume of the solid. Set up the integral, but do NOT compute the integral.

\[
\int \int_0^{12} \int_0^{4-\frac{x}{3}} \int_0^{\frac{1}{2} - \frac{y}{3}} (x + 3y + 6z) \, dz \, dy \, dx
\]