MTH 255
Mini Test 2

Damien Adams

(9) 1. Find the area of the part of the paraboloid $y = 2x^2 + 2z^2$ that lies inside the cylinder with equation $x^2 + z^2 = 32$. Round your conclusion to the nearest thousandth of a square unit.

(8) 2. Let E be the solid bounded by the cylinder $y = x^2$ and the planes $z = 0$, $z = 4$, and $y = 4$. Draw E, and use a triple integral to find the volume of E.

(8) 3. Evaluate $\iiint_E xyz \, dV$, where E is the solid in the first octant between the spheres $\rho = 2$ and $\rho = 4$ and above the cone $\varphi = \dfrac{\pi}{3}$.