The paraboloid $z = 10 + 2x^2 + 2y^2$ intersects the plane $z = 16$ when $16 = 10 + 2x^2 + 2y^2$ or $x^2 + y^2 = 3$ and we are restricted to the first octant, so

$$V = \iint\limits_{\substack{x^2+y^2 \leq 3, \\ x \geq 0, y \geq 0}} \left[16 - \left(10 + 2x^2 + 2y^2 \right) \right] dA = \int_0^{\pi/2} \int_0^{\sqrt{3}} \left[16 - \left(10 + 2r^2 \right) \right] r\, dr\, d\theta$$

$$= \int_0^{\pi/2} d\theta \int_0^{\sqrt{3}} \left(6r - 2r^3 \right) dr = \left[\theta \right]_0^{\pi/2} \left[3r^2 - \tfrac{1}{2}r^4 \right]_0^{\sqrt{3}} = \tfrac{\pi}{2} \cdot \tfrac{9}{2} = \tfrac{9}{4}\pi$$