

$$z = x^2 + y^2 \quad \text{między } z=0 \quad \text{a } z=10$$

$$\int_{-\sqrt{10}}^{\sqrt{10}} \int_{-\sqrt{10-y^2}}^{\sqrt{10-y^2}} 1 \, dx \, dy = 2 \int_{-\sqrt{10}}^{\sqrt{10}} \sqrt{10-y^2} \, dy = \left| \begin{array}{l} y = \sqrt{10} \sin t \\ dy = \sqrt{10} \cos t \, dt \end{array} \right| =$$

$$= 2 \int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} 10 \cdot \cos^2 t \, dt = 20 \int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \cos^2 t \, dt = 20 \cdot \left( \frac{t}{2} + \frac{\sin 2t}{4} \right) \Big|_{-\frac{\pi}{2}}^{\frac{\pi}{2}} = 10\pi$$

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$$\int_0^{2\pi} \int_0^{\sqrt{10}} r \, dr \, d\phi = \int_0^{2\pi} \frac{r^2}{2} \Big|_0^{\sqrt{10}} d\phi = \int_0^{2\pi} 5 \, d\phi = 5\phi \Big|_0^{2\pi} = 10\pi$$