

907.f.

$$V = \int_D \frac{dx dy}{\sqrt{1+y^4}} = \int_{y=0}^1 \left(\int_{x=0}^y \frac{dx}{\sqrt{1+y^4}} \right) dy = \int_{y=0}^1 \frac{y dy}{\sqrt{1+y^4}}$$

$$V = \int_{\substack{t=y^2 \\ dt=2y dy}}^{\substack{t=1 \\ t=0}} \frac{dt}{2\sqrt{1+t^2}} = \int_{t=0}^1 \frac{dt}{2\sqrt{1+t^2}}$$

$$V = \frac{1}{2} \left[\ln(t + \sqrt{1+t^2}) \right]_{t=0}^1 = \frac{1}{2} (\ln(1 + \sqrt{2}) + \ln 1) = \frac{1}{2} \ln(1 + \sqrt{2})$$

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$$V = \int_{y=0}^4 \left(\int_{x=\sqrt{y}}^2 y \cos x^5 dx \right) dy = \int_{x=0}^2 \left(\int_{y=0}^{x^2} y \cos x^5 dy \right) dx$$

$$V = \int_{y=0}^4 \frac{1}{2} \left[y^2 \cos x^5 \right]_{y=0}^{x^2} dy = \int_{x=0}^2 \frac{1}{2} x^4 \cos x^5 dx$$

$$V = \int_{t=0}^{32} \frac{1}{2} \frac{1}{5} \cos t dt = \frac{1}{10} \left[\sin t \right]_{t=0}^{32} = \frac{\sin 32}{10}$$

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