

$$= \int_0^1 \int_0^{1-x} \int_0^{1-x-y} 1+xy \, dz \, dy \, dx$$

$$= \int_0^1 \int_0^{1-x} \underbrace{(1+xy)(1-x-y)}_{1-x-y+xy-x^2y-xy^2} \, dy \, dx$$

$$= \int_0^1 \left[1-x - x(1-x) - \frac{1}{2}(1-x)^2 + \frac{1}{2}x(1-x)^2 - \frac{1}{2}x^2(1-x)^2 - \frac{1}{3}x(1-x)^3 \right] dx$$

$$= \int_0^1 \left(\frac{1}{2} - \frac{5}{6}x + \frac{1}{2}x^3 - \frac{1}{6}x^4 \right) dx$$

$$= \frac{7}{40}$$

As type 2: $\iiint_D 1+xy \, dv$

$$= \int_0^1 \int_0^{1-y} \int_0^{1-x-y} 1+xy \, dz \, dx \, dy$$

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