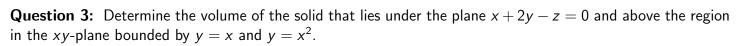
Question 1: Compute $\iint_R xy\sqrt{x^2+y^2}\,dA$ where $R=[0,1]\times[0,1]$.

[5]

Question 2: Calculate $\int_0^2 \int_{x^2}^4 x^3 e^{y^3} dy dx$ (reversing the order of integration may help here.)





[5]

Question 4: Determine the volume of the solid in the first octant that lies between the paraboloid $z = 1 + x^2 + y^2$ and the plane z = 10. (Polar coordinates may be helpful here.)

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Question 5: Evaluate $\iiint_E x \, dV$ where E is the solid tetrahedron with vertices (0,0,0), (2,0,0), (0,1,0) and (0,0,4)

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Question 6: Evaluate $\iiint_E xy^2$ where E is the solid in the first octant that is bounded by the cylinders $x^2 + y^2 = 1$ and $x^2 + y^2 = 4$, and on top by the plane y + z = 3.

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Question 7: Express the integral

$$\int_{-1}^{1} \int_{x^2}^{1} \int_{0}^{1-y} f(x, y, z) \, dz \, dy \, dx$$

as an iterated integral in the order dx dy dz