

### Basic Information

This assignment is due on Gradescope by **1:30 PM on Friday, April 18**.

Make sure you understand MHC [honor code](#) and have carefully read and understood the additional information on the [class syllabus](#). I am happy to discuss any questions or concerns you have!

Since this is a 200-level mathematics course, quite a few homework questions will ask you to explain your reasoning or process for solving a problem. Whenever possible, write your explanations in complete sentences and write your answers as if you were explaining to a peer in the class.

The homework problems will be graded anonymously so please do not put your name or other identifying information on the pages.

### Turn In Problems

- 13.6: 16 – set up but do not integrate the 6 integrals
- 13.7: 14, 18
- #4. Set up but do not integrate the 6 integrals that could represent the volume of the tetrahedron in the first octant formed by the planes  $x + 2y + z = 2$  and  $x = 2y$ .
- #5. Use spherical coordinates to set up  $\iiint_R 9 - x^2 - y^2 \, dV$  where  $R$  is the *filled in* hemisphere  $x^2 + y^2 + z^2 \leq 9$  above the  $xy$ -plane.

Here is a Desmos link for pictures from the first and 4th problem:

<https://www.desmos.com/3d/k3mez3mk60>

### Additional Problems (to do on your own, not to turn in)

- 13.6: 15 (set up but do not integrate the 6 integrals)
- 13.7: 15, 17
- Use spherical coordinates to set up  $\iiint_R z \, dV$  where  $R$  lies between the spheres  $x^2 + y^2 + z^2 = 1$  and  $x^2 + y^2 + z^2 = 4$  in the first octant.