Math 45021 Homework 6

Due April 26th

1. pg. 169: 12.1, 12.2, 12.12, 12.13
2. pg. 188: 13.1, 13.4, 13.6, 13.9
3. In Geogebra, explore creating the following figures in three dimensions and find their volume:
   (a) A simplex, which is the convex figure with vertices at $(0, 0, 0)$, $(1, 0, 0)$, $(0, 1, 0)$, $(0, 0, 1)$
   (b) A cube, which is the convex figure with vertices at $(\pm 1, \pm 1, \pm 1)$.
   (c) A cone with base in the x, y plane of a circle centered at the origin of radius 3, and an apex at (0, 0, 2).
   (d) A right cylinder with the same base as above, and height of the cylinder equal to 2.
4. Watch the following video `https://www.youtube.com/watch?v=-HchPhg4x10` which shows how Archimedes used the volume of a cone and a cylinder to find the volume of a sphere.