Homework 3 **Due January 29, 2026**
Calculus II **Prof. Nollet**

Section 6.1. This homework will be longer than usual, because there are so many types of problems, as you can see by the descriptions below.

Cross sectional area: #3, 5, 16

Disks about x-axis #23, 27

Disks about y-axis #37, 38

Washers about x-axis #39, 42

Washers about x-axis #48, 49

Washers and disks about other axes #53, 54, 55 bc

Hints:
#3 Draw a picture to help find the side length of the cross sectional squares.
#5 Find a formula for the area of an equilateral triangle in terms of one side length.
#16 The cross sections are rectangles of length 10, what is the width in terms of the depth?
#39 Use picture to see outer and inner radius of washers.
#42 Draw picture, what is radius of the disks.
#48 Washers are horizontal, so integrate with respect to y variable.
#53 Parts (a) and (b) should be easy. For (c) and (d), draw a picture and identify the radius of the washers or disks. Part (c) has vertical disks, (d) has horizontal washers.
#54 Use the y variables
#55 Use the x variable, draw a picture to see the washers. Parts (b) and (c) are quite different.