

Homework 5

Math 252

Due May 12th at 11:59 PM

Textbook Exercises

2.3: 121, 123, 125, 131, 131, 139, 147

2.4: 165, 171, 173, 177, 183, 185, 191, 197, 199, 201

2.5: 219, 225, 227, 231, 235, 239

Exercise 1: On exercise 2 from the previous homework, you found the volume of a region when rotated about both axes.

- a) Find the volume when the region is rotated about the x -axis using the shell method (hint: your final answer should match the one from the previous homework).
- b) Find the volume when the region is rotated about the y -axis using the shell method.

Exercise 2: A cable has density $5\frac{kg}{m}$ and is $50m$ long. If it's hanging straight down, find the work done by winding it all up.

Bonus: Show that the surface area of a cone with radius r and height h is $\pi r(r + \sqrt{r^2 + h^2})$ (remember to include the base circle!).