Daily Prep Assignment for March 18th

Overview

In sections 11.2 we learned how to compute an iterated integral over a rectangle. In 11.3 we compute iterated integrals over general regions which will require being careful about our bounds of integration. In section 11.5 we look at another powerful tool for computing iterated integrals: polar coordinates.

Basic learning objectives

These are the tasks you should be able to perform with reasonable fluency **when you arrive at our next class meeting**. Important new vocabulary words are indicated *in italics*.

- Integrate iterated integrals over a rectangle.
- Understand how an iterated integral works by first cutting our volume into slices and then cutting each slice up into little columns since it is just the area under a curve.
- Be able to convert points from rectangular coordinates to polar coordinates and vice versa.

Advanced learning objectives

In addition to mastering the basic objectives, here are the tasks you should be able to perform **after class, with practice**.

- Set up iterated integrals over general regions.
- Switch the order of integration for double integrals over general regions.
- Convert double integrals from rectangular to polar coordinates and vice versa.

To prepare for class

Preview activities: Read the example preview activity solution on the course website then,

- Preview activity 11.3.1
- Preview activity 11.5.1

Reading:

- Read section 11.3
- Read section 11.5

Watching: Watch these additional resources if you need support reading the text.

1. Overview of extra 11.3: `https://youtu.be/d-Cn9p-D_5A`
2. Overview of extra 11.3: `https://youtu.be/SurY43pcVZE`

During and after class

- Activity 11.3.2
- Activity 11.3.3
- Activity 11.3.4
- Activity 11.5.2
- Activity 11.5.3
- Activity 11.5.4
- Activity 11.5.5