

Reading 11 (Due Monday 7/22/21 by 12:55 PM)

Directions: Read the following sections of the book:

- Section 11.5.1 and 11.6.1.

and complete the following tasks along the way. If an Activity is not listed, you do not need to complete it (although you are welcome to read it). Turn your write up in via [gradescope](#). You do not need to write the questions down, as long as you clearly indicate the question number.

1. Preview Activity 11.5.1.
2. Activity 11.5.2.
3. Preview Activity 11.6.1.
4. Activity 11.6.2.

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.

1. Plot points using polar coordinates.
2. Convert between rectangular and polar coordinates.
3. Graph basic curves and regions using polar coordinates.
4. Parametrize the graph of a function.
5. Parametrize basic surfaces that are NOT the graph of a function, such as: a sphere, a torus, or a cylinder.

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

1. Compute double integrals using polar coordinates.
2. Recognize when an integral is easier to compute using polar coordinates (instead of rectangular coordinates).
3. Compute the surface area of a surface using a double integral.