

Math 242 - Homework 10

Due Thursday, November 6

Exercises from the Book

- Chapter 3.1# 1, 2, 3, 4, 8, 9, 13
- See Page 191 for solutions to odd problems.

Additional Exercises

1. Use Excel or a computer program to estimate the value of $\iint_R e^{-x^2-y^2} dA$ on the rectangle $R = [0, 1] \times [0, 1]$ with a Riemann sum that has 100 sub-rectangles (separate the region into a 10-by-10 grid).
2. Use the image below and a Riemann sum (with 4 sub-rectangles) to estimate the average temperature in Colorado on the morning of Nov. 3, 2014. Note: for a function of two variables, the average value is:

$$f_{\text{average}} = \frac{1}{\text{Area}(R)} \iint_R f(x, y) dx dy.$$

The state of Colorado is a rectangle that is 388 miles wide and 276 miles tall. It might help to draw a grid on this page to find the values of the function at the mid-point of each sub-rectangle.

