

# Math 262 Reading Guide

Section 4.9

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NAME

Read Section 4.9 and answer the following questions. *Hand in this worksheet at the next class.*

1. What are **order statistics**? (You don't need to copy the definition verbatim from the book; just summarize it in your own words.)

2. Suppose a random sample of size  $n$  is taken from a continuous distribution with cdf  $F(x)$  and pdf  $f(x)$ .

(a) What is the pdf of  $Y_n$ , the largest order statistic?

(b) What is the pdf of  $Y_1$ , the smallest order statistic?

(c) What is the pdf of  $Y_i$ , the  $i^{\text{th}}$  smallest order statistic?

3. In Example 4.54, how are order statistics used to find the expected value of the *sample range*  $Y_4 - Y_1$ ?