MATH 140 **Name** _____ **Date:**

Worksheet: Random Rectangles

The Scene: 100 rectangles lurk on the back of this page... but DON'T LOOK! At the instructor's go-ahead you will use estimate the average area of these 100 rectangles in three different ways.

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1. **Method 1** : When I say "Go!" turn the page over, look at the rectangles for 5 seconds, then record below your best guess as to the average area of the rectangles.

   Method 1 Estimate : _____

2. **Method 2**: When I say "Go!" turn the page over and circle five rectangles that strike you as representative of the population. Record below the rectangle number and area of each rectangle in your sample. Then your Method 2 Estimate is the average area of your five rectangles.

rectangle number					
rectangle area					

   Method 2 Estimate : _____

3. **Method 3**: In RStudio run the following code: `sample.int(n=100,size=5)`

   This code randomly selects 5 integers from 1 to 100. Record these 5 numbers in the first row of the table below. Then find and record the areas of the rectangles having these numbers. Your Method 3 Estimate is the average of these five rectangle areas.

rectangle number					
rectangle area					

   Method 3 Estimate : _____

4. We will compile the class data and compute the average, standard deviation, and 5 number summary for each of the three methods. Record these numbers here:

Method	class mean	st. dev	5 number summary
1			
2			
3			

   How do the centers and spreads of the various distributions compare? Based on these numbers and/or other considerations, which of the three methods do you think will tend to produce the best estimate of the population mean? Explain.

100 Rectangles