Simulation Lab (submit Excel file only)

Using MS Excel (or any other adequate spreadsheet program such as the spreadsheet available in *OPEN OFFICE*), use simulation to obtain probabilities for the 3 experiments below. ***View my partial solution to this lab on line at www.markeredwards.com (click on Statistics).***

Use at least 10,000 trials for each simulation and visually show the simulation with an Excel Graph.

Boys

Experiment 1: On the roll of a **single fair die**, the result will be greater than 5.

Experiment 2: On the simultaneous roll of **three (3)** fair dice, the summation result will be less than 12.

Girls

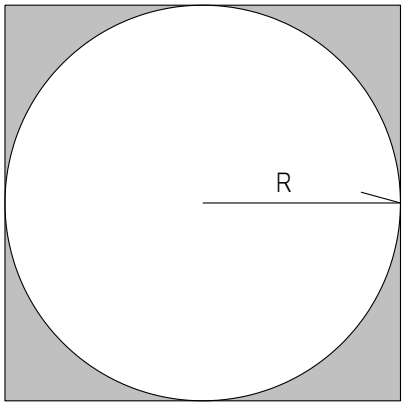
Experiment 1: On the roll of a **single fair die**, the result will be less than than 5.

Experiment 2: On the simultaneous roll of **three (3)** fair dice, the summation result will be greater than 14.

Both Boys and Girls:

Experiment 3: Calculate the value of pi ().

The value of PI () can be approximated by throwing darts at a dart board. Assume a round dart board mounted within a square back board (shown below) with a uniform distribution of darts in both the x and y directions being launched against the square dart back board. Assume all darts strike within the square region.



By simulating the throws and counting the hits within the circle relative to the total number of thrown darts, determine the value of PI.

As an alternative, conduct Buffon's needle simulation to calculate the value of pi. Visit: http://en.wikipedia.org/wiki/Buffon's_needle and MANY other web pages for a explanation.
(In AP-CS, we will write the Java code for this!)