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Problem 5.2
Suppose we toss darts randomly at a square dartboard, whose bullseye is at the origin, and whose sides are 2 feet in length. Suppose also that there’s a circle inscribed in the square dartboard. The radius of the circle is 1 foot, and it’s area is $\pi$ square feet. If the points that are hit by the darts are uniformly distributed (and we always hit the square), then the number of darts that hit inside the circle should approximately satisfy the equation

$$\frac{\text{number in circle}}{\text{total number of tosses}} = \frac{\pi}{4}$$

Since the ratio of the area of the circle to the area of the square is $\pi/4$. We can use this formula to estimate the value of $\pi$ with a random number generator:

```c
number_in_circle = 0;
for (toss = 0; toss < number_of_tosses; toss++) {
    x = random double between -1 and 1;
    y = random double between -1 and 1;
    distance_squared = x*x + y*y;
    if (distance_squared <= 1) number_in_circle++;
}
pi_estimate = 4*number_in_circle/(( double ) number_of_tosses);
```

This is called a Monte Carlo method, since it uses randomness (the dart tosses). Write an OpenMP program that uses a Monte Carlo method to estimate $\pi$. Read in the total number of tosses before forking any threads. Use a `reduction` clause to find the total number of darts hitting inside the circle. Print the result after joining all the threads. You may want to use `long long ints` for the number of hits in the circle and the number of tosses, since both may have to be very large to get a reasonable estimate of $\pi$. 
Due: 10/23/14, at start of class.

Turn in a written report, describing your solution and results; include:

- include copy of your code and copies of batch scripts.
- include a discussion of what you did, why, and what you measured, etc.
- printout of output data for small, readable test cases.
- tables of results with notation about the data and what it means
- plots of results with notation about the data and what it means