Lesson 13. An Application

A squadron of bombers is attempting to destroy an ammunition depot that has a rectangular shape and is 1000 meters by 500 meters. The bombing run will proceed down the long center axis of the depot. If a bomb lands anywhere on the depot, a hit is scored. Otherwise, the bomb is a miss. There are ten bombers in each squadron. A bombing run consists of each of the 10 bombers dropping their bomb on the depot. The aim point is the center of the depot. The point of impact in the down-range direction is assumed to have a normal distribution around the aim point with a standard deviation of 600 meters; similarly, the point of impact in the cross-range direction is assumed to have a normal distribution around the aim point with a standard deviation of 200 meters.

   a. Simulate 100 bombing runs and obtain an estimate of the expected number of hits on a run.

   b. How many bombing runs must be simulated to ensure the estimate is accurate to two decimals (i.e. error less than 0.005) with 95% confidence?

Hint. You may find the AND function useful.