Programming Assignment in Matlab

We say that we "sample from a word" when we sample from a bivariate density that is truncated to the unit square, i.e. to [-1, 1], but with higher probability inside the letters, as in the example given where we sample "Hi" (using ball walk).

We give the constraints for "i" in matlab (below).

1: Use the ball walk in matlab to sample from a density that says "Hi".

2: Implement the Hit and Run algorithm to sample from the same distribution.

3: Use one (or both) of the above random walks to estimate the area of "Hi" via Monte Carlo. Which one is faster? gives better result?


```
% matlab constraints for "i"
if((p(1)>0 && p(1)<0.1) && (p(2)<0.2 && p(2)>-0.6))
    % in vertical segment
    return;
end

if((norm(p - [0.05; 0.3])<=0.05))
    % in dot
    return;
end
```