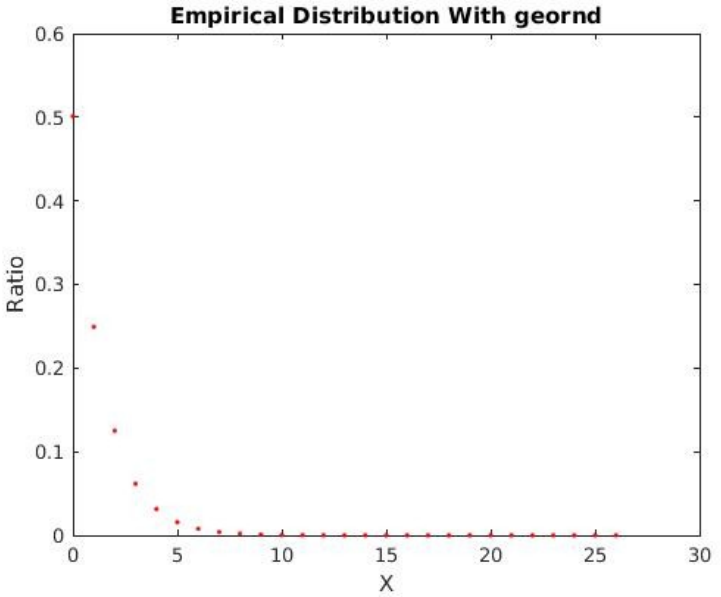
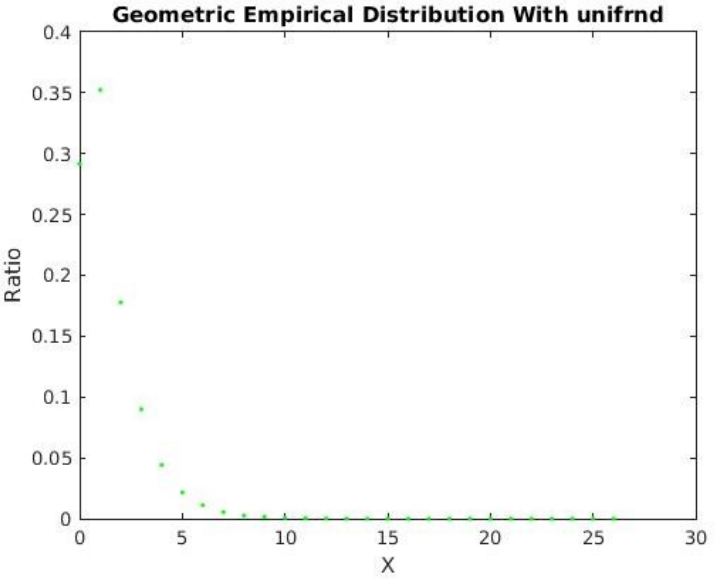
Question 1

```
numOfPoints = 10^5;
xs = geornd(.5,[1, numOfPoints]);
valueCounts = hist(xs, 0:1:26);
valueRatios = valueCounts / numOfPoints;
plot(0:1:26, valueRatios,'r.','LineWidth', 2);
title('Empirical Distribution With geornd');
xlabel('X');
ylabel('Ratio');
```



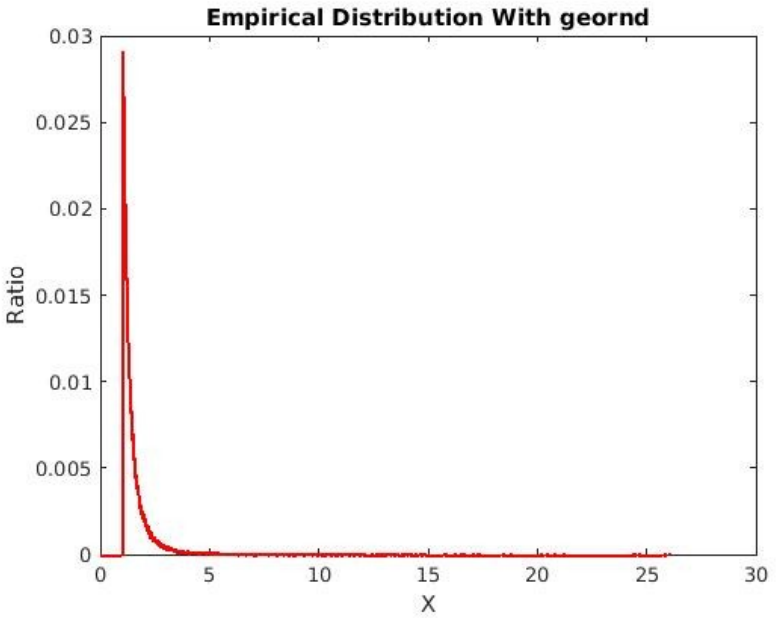

```
numOfPoints = 10^5;
us = unifrnd(0,1,[1,numOfPoints]);
for i = 1:numOfPoints
    xs(i) = log(1-us(i))/log(1/2);
end
valueCounts = hist(xs, 0:0.01:26);
valueRatios = valueCounts / numOfPoints;
plot(0:0.01:26, valueRatios,'r-','LineWidth', 2);
title('Geometric Empirical Distribution With unifrnd');
xlabel('X');
ylabel('Ratio');
```



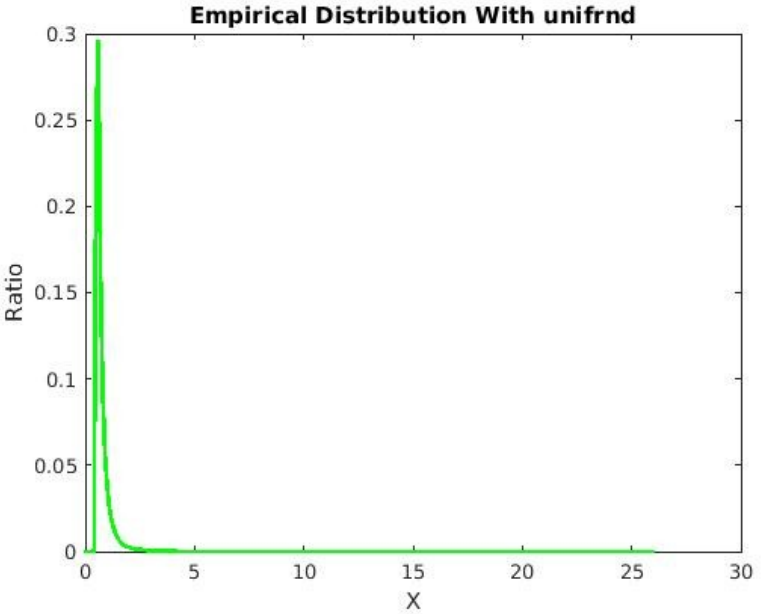
They look similar but the one I created refuses to stop shifting to the right.

Question 2

```
numOfPoints = 10^5;
xs = gprnd(1/3,1/3,1,[1, numOfPoints]);
valueCounts = hist(xs, 0:0.01:26);
valueRatios = valueCounts / numOfPoints;
plot(0:0.01:26, valueRatios,'r-','LineWidth', 2);
title('Empirical Distribution With geornd');
xlabel('X');
ylabel('Ratio');
```




```
numOfPoints = 10^5;
us = unifrnd(0,1,[1,numOfPoints]);
for i = 1:numOfPoints
    xs(i) = power((1/(us(i)-1)),1/3);
end
valueCounts = hist(xs, 0:0.1:26);
valueRatios = valueCounts / numOfPoints;
plot(0:0.1:26, valueRatios,'r-','LineWidth', 2);
title('Empirical Distribution With unifrnd');
xlabel('X');
ylabel('Ratio');
```



They look similar but mine refuses to stop shifting to the left.