hw6\_matlab

7.

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| --- |
| clear all;  close all;    trials = 10000;    figure(1);    clf;    point = rand([2 trials])\*2 - 1;    plot(point(1,:),point(2,:), 'xb');    xlim([-1 1]);  ylim([-1 1]);    hold on;    count = 0;  expectation = [];    for i=1:trials  if((point(1,i)\*point(1,i)+point(2,i)\*point(2,i)) < 1)    plot(point(1,i),point(2,i), 'xr');    count = count+1;    expectation = [expectation sqrt((point(1,i)\*point(1,i)+point(2,i)\*point(2,i)))];    end    end    probability = count / trials;  mymean = mean(expectation);  myvar = var(expectation);    title({strcat('Probability is:', num2str(probability));strcat('expectation is:', num2str(mymean));strcat('variance is:', num2str(myvar))}); |
|  |

10.

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| close all;  clear all;    trials = 10000;  lamda = 2;    myarray = rand(1,trials);  values = -log(1-myarray)/lamda;    [y x] = hist(values);    area = ((x(2)-x(1))\*sum(y));  bar(x,y/area); |

15.

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| --- |
| clear all;  close all;    trials = 10000;    figure(1);    clf;    point = rand([2 trials])\*2 - 1;    plot(point(1,:),point(2,:), 'xb');    xlim([-1 1]);  ylim([-1 1]);    hold on;    count = 0;  expectation = [];    for i=1:trials  if((point(1,i)\*point(1,i)+point(2,i)\*point(2,i)) < 1 && point(2,i) > 0)    plot(point(1,i),point(2,i), 'xr');    count = count+1;    expectation = [expectation point(2,i)];    end    end    probability = count / trials;  mymean = mean(expectation);    title({strcat('Probability is:', num2str(probability));strcat('expectation is:', num2str(mymean))}); |