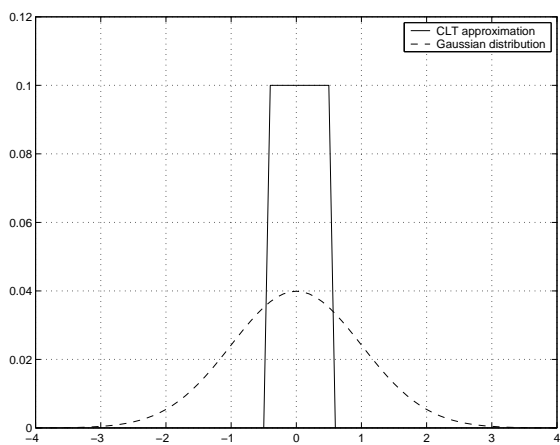
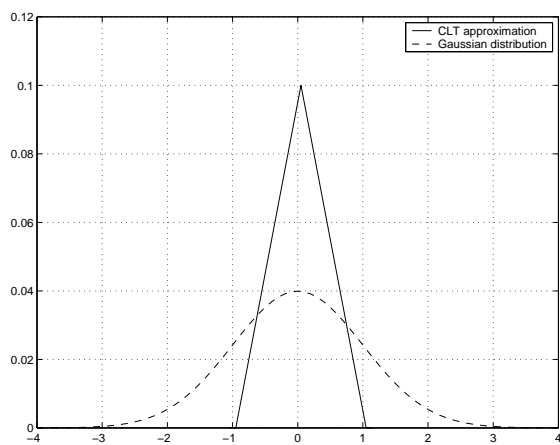


## Illustration of CLT

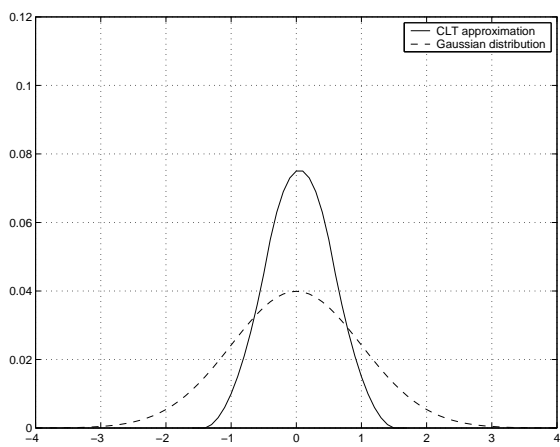
```
1
2 % An illustration for central limit theorem
3 % Shengli Zhou, 09/04/2002
4
5 clear
6
7 % 10 samples from the uniform p.d.f.
8 stepsize=0.1;
9 t=-0.4:0.1:0.5;
10 x=ones(1,length(t))*stepsize;
11 x=[0 x 0];
12
13 % gaussian p.d.f.
14 t0=[-4:0.1:4]; % stepsize 0.1
15 y0=1/sqrt(2*pi)*exp(-t0.^2/2)*stepsize;
16
17 y=1;
18 for i=1:12
19     y=conv(y,x);
20     hold off
21     plot(((1:length(y))-length(y)/2)*stepsize,y,'-k'); hold on
22     plot(t0,y0,'--k'); hold on
23     hold off
24     set(gca,'xlim',[-4 4]);
25     set(gca,'ylim',[0 0.12]);
26     grid;
27     legend('CLT approximation','Gaussian distribution');
28     str=strcat('print -deps -f1 conv',num2str(i),'.eps');
29     eval(str);
30     pause
31 end
```



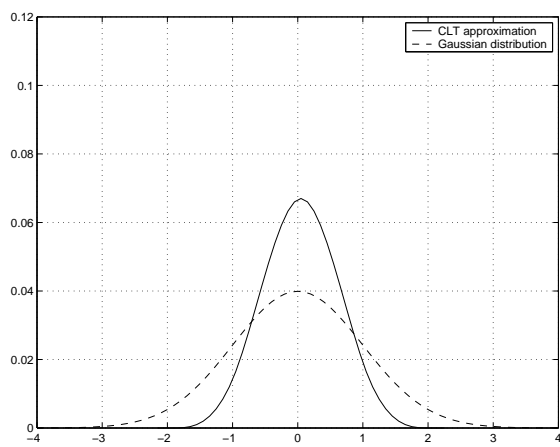
(a)  $N=1$



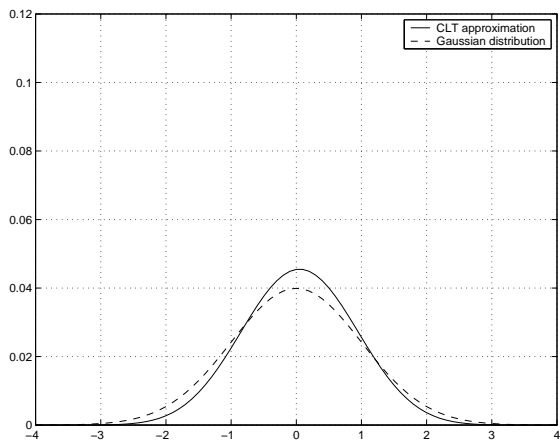
(b)  $N=2$



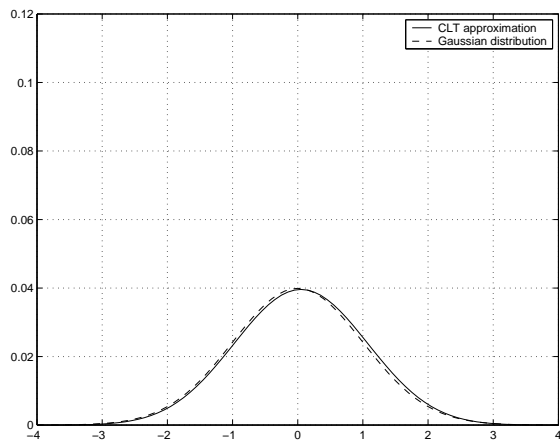
(c)  $N=3$



(d)  $N=4$



(e)  $N=9$



(f)  $N=12$