**Simple Models II: Point kinetics**  
  
1. Use the m-file pointk.m and ode45 to simulate the response for 60 seconds when the excess reactivity is 80 pcm.

Hints:  
 a) Copy and paste al and b from the file pointk.m to command line so al and b are defined  
 b) Define the initial condition y0=[1;b./al/L]  
 c) Use ode45 :  
 >> [t,y]=ode45(@pointk,[0 60],y0);

2. Use ode15s. Compare the length of the output from ode45. Also compare the plots by zooming in.

3. Note that the system is linear if raa is constant. Define the A-matrix for raa=80 pcm and calculate the  
 eigenvalues. Use the positive eigenvalue to evaluate the doubling time.

4. Pass in al and beta as input arguments to pointk. Run with beta = 500pcm

5. Write a function fcn\_raa that specifies the reactivity and pass in as a function handle to pointk

6. Use the function dub2raa to plot the reactivity vs doubling time for τ2=10 to τ2=1000 s.

7. Use the function dub2raa and fzero to create the inverse function raa2dub: t2=raa2dub(raa)  
 use τ2=5000/ρ to get a starting guess.