Topic 4 problems

1. Write a function **centrerect.m** that gives the screen coordinates that centre an image inside a rectangle. The function should take two arguments: **bigRect**, the corners of a screen rectangle in Psychtoolbox format, i.e., [x1 y1 x2 y2]; and **dim**, the size of an image matrix, i.e., [m n]. The function should return one argument, **smallRect**, that gives the coordinates of the screen rectangle that centres an image of size dim inside the rectangle **bigRect**. For example:

   centrerect([0 0 100 100],[10 10])
   ans =
           45 45 45 45

2. Write a script **noisemovie.m** that uses the Psychtoolbox to show an endlessly looping 30-frame movie of white noise. Use floor(256*rand(256,256)) to get each frame of white noise. Each frame should be 256 × 256 pixels and last for one video frame. Use your solution to problem 1 to centre the frame on the screen.

If you find this easy, show an endlessly looping 30-frame movie of a vertical sine wave smoothly drifting to the right. You can use this movie to generate motion aftereffects, i.e., the waterfall illusion.