Math 19
Problem Set 16, Chapter 22-sample answers

1. Any experiment that involves measuring the proportion of infected mice along a horizontal line across the united states over a period of several years and graphing these results to see if the wave retains it's shape.

2. r= growth rate. To find r, check the proportion of infected mice in a given area at frequent intervals and calculate growth rates of the infection from this data. Once r is know, test the population and find the value of U(t,x) at specific values of t and x. Now solve the diffusion equation for mu.

3. Strategy c is probably the best choice because the virus is spreading most in the border area.

4. Slow waves are steep because more people have a tendency to get sick before the wave passes, allowing a higher proportion of infection. Fast waves would be less steep because fewer people have a chance to become infected before the wave passes.