After watching the video, Solving for Exponents, complete the following problems.

1. Estimate a solution for  $5^x = 3^{2x+1}$  using a graph. Then, solve using symbolic reasoning.

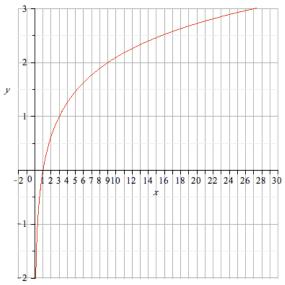
- 2. According to data from the U.S. Department of Agriculture, beef consumption in the United States (in billions of pounds) x years after 1900 can be approximated by -154.41+90.68 log x.
  - a) According to this model, how much beef was consumed in 2000?

b) According to this model, when will beef consumption reach 50 billion pounds per year?





3. The following is a graph of x versus  $log_b x$ . What is the value of b? How do you know?



4. Find the value of *b* given the following table of values. You don't need a calculator to find it!

х	log <sub>b</sub> x
1	0
18	1.6131
36	2.0000
50	2.1833

5. Solve the following equation:  $10^{x^2-3x+6} = 10,000$ 

6. Solve the following equation:  $10^{3x+2} = 10^5$