

Directions: This assessment has 3 questions, for a total of 20 points. You must show all of your work to receive full credit for an answer. Remember, you may not use a calculator or any other resources during this assessment. Good luck!!

First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_ # \_\_\_\_\_

1. (6 points) Give an example of a bounded below and monotone sequence. Does the sequence diverge or converge?

2. (7 points) Write the  $n$ th term of the sequence  $-1, 5, -7, 17, -31, \dots$

3. (7 points) Does the sequence  $s_n = \frac{n^2+2}{n^3+1}$  for  $n \geq 1$  converge or diverge? If the sequence converges determine what the sequence converges to.