Name_____ Date_____

Density, Limits, and Infinity

1. How many numbers are there between $\frac{1}{5}$ and $\frac{2}{5}$? Explain your answer.

2. a) Consider the set of even numbers between 0 and 100.
   What is the density of this set?

   b) Consider the set of real numbers between 0 and 100.
   What is the density of this set?

   c) Which set is more dense? Explain.

3. Write the limit of each sequence.

   a) 8.9, 8.99, 8.999, …   The limit is ____.

   b) 72.05, 72.005, 72.0005, … The limit is ____.

   c) $\frac{1}{3}, \frac{1}{9}, \frac{1}{27}, \frac{1}{81}$, ...   The limit is ____.

4. Create a sequence of numbers with a limit of 3. Trade sequences with a classmate, then confirm or challenge your classmate's thinking.