

Name: _____

Show All Your Work

1. Give reasons why the following sequences converge or diverge. If a sequence converges, give the limit.

a. $\frac{13}{3}, \frac{43}{9}, \frac{93}{19}, \frac{163}{33}, \dots, \frac{10n^2 + 3}{2n^2 + 1}, \dots$

b. 0.0351, 0.0351351, ... 0.0351351...351, (n copies of 351 after 0.0)

2. Consider the sequence $\{s_n\} = \frac{(\square)^n}{3^n}$, for $n = 1, 2, 3$, and continuing for all

positive integers, n . Write down the first four terms of the sequence and give an argument that this sequence converges to a number.

3. Consider the infinite series $\sum_{n=1}^{\infty} \frac{7 \cdot 5^n}{9^n}$. Does it converge? If it does converge, to what number does it converge?

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