

Name: \_\_\_\_\_.

Show All Your Work

1. Consider the infinite series  $\frac{3}{25} + \frac{3}{125} + \frac{3}{625} + \cdots + \frac{3}{5^{n+2}} + \cdots$ .

a. Does this sequence diverge, or converge? Give reasoning for your answer.

b. If it converges, give the number to which it converges, again, with reasoning to support your answer.

2. Consider the infinite series  $\frac{2}{7} + \frac{2}{8} + \frac{2}{9} + \cdots + \frac{2}{n+6} + \cdots$

a. Does this sequence diverge, or converge? Give reasoning for your answer.

b. If it converges, give the number to which it converges, again, with reasoning to support your answer.

3. Does the infinite series  $\sum_{n=2}^{\infty} \frac{(-3)^n}{7^n}$  converge? If so, give the number.

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