Name:

Date:

Infinite Geometric Series

Determine if each geometric series converges or diverges.

1) $\frac{128}{3125} - \frac{64}{625} + \frac{32}{125} - \frac{16}{25} \ldots,$

2) $81 + 27 + 9 + 3 \ldots,$

3) $a_1 = -3, r = 4$

4) $-3 + \frac{12}{5} - \frac{48}{25} + \frac{192}{125} \ldots,$

5) $a_1 = -1, r = 3$

6) $a_1 = 5.5, r = 0.5$

Evaluate each infinite geometric series described.

7) $a_1 = 3, r = -\frac{1}{5}$

8) $a_1 = 1, r = -3$

9) $\sum_{i=1}^{\infty} (\frac{1}{3})^{i-1}$

10) $1 - 0.6 + 0.36 - 0.216 \ldots,$

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1) $\frac{128}{3125} - \frac{64}{625} + \frac{32}{125} - \frac{16}{25} \ldots,$

Diverges

2) $81 + 27 + 9 + 3 \ldots,$

Converges

3) $a_1 = -3, r = 4$

Diverges

4) $-3 + \frac{12}{5} - \frac{48}{25} + \frac{192}{125} \ldots,$

Converges

5) $a_1 = -1, r = 3$

Diverges

6) $a_1 = 5.5, r = 0.5$

Converges

7) $a_1 = 3, r = -\frac{1}{5}$

$\frac{5}{2}$

8) $a_1 = 1, r = -3$

No sum

9) $\sum_{i=1}^{\infty} (\frac{1}{3})^{i-1}$

$\frac{3}{2}$

10) $1 - 0.6 + 0.36 - 0.216 \ldots,$

0.625