

Practice Quiz 4 - Geometric Series

Date _____

Determine if each geometric series converges or diverges. (Diverges means it does NOT converge).

1) $7.2 + 2.88 + 1.152 + 0.4608\dots$

2) $4 + 2 + 1 + \frac{1}{2}\dots$

3) $1 - 3 + 9 - 27\dots$

4) $-5.3 - 5.83 - 6.413 - 7.0543\dots$

Find the finite sum for each given geometric series.

5) $a_1 = -3, r = -2, n = 7$

6) $a_1 = 1, r = -6, n = 7$

7) $a_1 = 1, r = \frac{2}{3}, n = 9$

8) $a_1 = -27, r = -\frac{1}{3}, n = 8$

9) $\sum_{i=1}^8 (-6)^{i-1}$

10) $\sum_{m=1}^9 4^{m-1}$

11) $\sum_{i=1}^{10} (-4)^{i-1}$

12) $\sum_{i=1}^7 (-4)^{i-1}$

Find the infinite sum, if it exists, for each given geometric series. If the sum does not exist, write "no sum."

13) $\sum_{n=1}^{\infty} 1215 \cdot \left(\frac{1}{3}\right)^{n-1}$

14) $\sum_{m=1}^{\infty} -24 \cdot \left(-\frac{1}{2}\right)^{m-1}$

15) $\sum_{k=1}^{\infty} -\left(\frac{1}{4}\right)^{k-1}$

16) $\sum_{i=1}^{\infty} 2 \cdot \left(-\frac{3}{2}\right)^{i-1}$

Determine the common ratio of the infinite geometric series.

17) $a_1 = 3, S = 6$

18) $a_1 = 1, S = 1.25$

Answers to Practice Quiz 4 - Geometric Series

1) Converges

5) -129

9) -239945

13) $\frac{3645}{2}$

17) $\frac{1}{2}$

2) Converges

6) 39991

10) 87381

14) -16

18) 0.2

3) Diverges

7) $\frac{19171}{6561}$

11) -209715

15) $-\frac{4}{3}$

4) Diverges

8) $-\frac{1640}{81}$

12) 3277

16) No sum