

Geometric Sequence and Series

Name ANSWERS

Date _____

1. In a geometric progression, the first term is 2 and the common ratio is -3 . State the next 3 terms.

$$-6, 18, -54$$

2. Find the common ratio and the next 2 terms for the geometric sequence $25, -5, 1, \dots$

$$r = -\frac{1}{5} \quad -\frac{1}{5}, \frac{1}{25}$$

3. What is the 9th term of the geometric progression $729, -243, \dots$?

$$\frac{1}{9}$$

4. In a geometric progression, the first term is 100 and the common ratio is $\frac{1}{2}$. Find the 12th term.

$$\frac{25}{512}$$

5. Write the first 4 terms of the geometric sequence whose 5th term is 6 and whose common ratio is $\frac{2}{3}$.

$$\frac{243}{8}, \frac{81}{4}, \frac{27}{2}, 9$$

6. Find the first term in a geometric progression whose common ratio is -2 and whose 7th term is 320.

$$5$$

7. In a geometric progression, the 6th term is $\frac{5}{54}$ and the 8th term is $\frac{10}{243}$. Find the first 3 terms.

$$\frac{45}{64}, \frac{15}{32}, \frac{5}{16}$$

OR

$$-\frac{45}{64}, \frac{15}{32}, -\frac{5}{16}$$

8. Which term is 768 in the geometric progression $\frac{3}{16}, -\frac{3}{4}, 3, \dots$?

$$7$$

9. In a geometric progression, the first term is 450, the n th term is 18, and the common ratio is $\frac{1}{5}$. Find the value of n .

$$3$$

10. If k , 6, and 10 are consecutive terms of a geometric sequence, find the value of k .

3.6

11. Find the sum of the geometric series $4 + 2 + 1 + \dots + \frac{1}{16}$.

$\frac{127}{14}$

12. Find the sum of the geometric series $\frac{1}{125} + \frac{1}{25} + \frac{1}{5} + \dots + 25$.

$\frac{3906}{125}$

13. In a geometric progression, the first term is 6 and the common ratio is 2. Find the sum of the first 6 terms.

378

14. Find the sum of the first 7 terms of the geometric series $224 + (-112) + 56 + \dots$.

$\frac{301}{2}$

Find the sum, if it exists.

15. $\frac{1}{9} + \frac{1}{3} + 1 + 3 + \dots$

diverges

16. $6 + 1 + \frac{1}{6} + \dots$

$\frac{36}{5}$

17. $-\frac{1}{5} + \frac{1}{25} + (-\frac{1}{125}) + \dots$

$-\frac{1}{6}$

18. $\frac{3}{4} + \frac{3}{4} + \frac{3}{4} + \frac{3}{4} + \dots$

diverges