

Pre Calculus 11 3 Geometric Sequences and Series

Lesson 202 | Precalculus | Geometric sequences and series

<https://www.youtube.com/watch?v=gJvix9uiwxk>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Find the sum of the infinite geometric series with first term 8 and ratio $\frac{1}{4}$.

02

A geometric sequence starts at 9 with ratio 5. Find term 5 and the sum through that term.

03

A geometric sequence starts at 9 with ratio 7. Find term 7 and the sum through that term.

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04

Find the sum of the infinite geometric series with first term 39 and ratio $\frac{1}{3}$.

05

A geometric sequence starts at 12 with ratio 6. Find term 4 and the sum through that term.

06

A geometric sequence starts at 3 with ratio 2. Find term 6 and the sum through that term.

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01

Find the sum of the infinite geometric series with first term 8 and ratio $1/4$.

$|r| = 1/4 < 1$, so $S = a_1/(1-r) = 8/(1-1/4) = 32/3$.

02

A geometric sequence starts at 9 with ratio 5. Find term 5 and the sum through that term.

$a_m = 9 \cdot 5^{(m-1)}$, so $a_5 = 5625$. $S_5 = 9(5^5-1)/(5-1) = 7029$.

03

A geometric sequence starts at 9 with ratio 7. Find term 7 and the sum through that term.

$a_m = 9 \cdot 7^{(m-1)}$, so $a_7 = 1058841$. $S_7 = 9(7^7-1)/(7-1) = 1235313$.

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04

Find the sum of the infinite geometric series with first term 39 and ratio $\frac{1}{3}$.

$|r| = \frac{1}{3} < 1$, so $S = \frac{a_1}{1-r} = \frac{39}{1-\frac{1}{3}} = 117/2$.

05

A geometric sequence starts at 12 with ratio 6. Find term 4 and the sum through that term.

$a_m = 12 \cdot 6^{(m-1)}$, so $a_4 = 2592$. $S_4 = 12(6^4 - 1)/(6 - 1) = 3108$.

06

A geometric sequence starts at 3 with ratio 2. Find term 6 and the sum through that term.

$a_m = 3 \cdot 2^{(m-1)}$, so $a_6 = 96$. $S_6 = 3(2^6 - 1)/(2 - 1) = 189$.