Sigma Notation & Infinite Geometric Series · 1

Find the sum of the infinite geometric series 64 - 16 + 4 - ..., or write diverges if it has no sum.

Sigma Notation & Infinite Geometric Series · 2

Find the sum of the infinite geometric series $10 \cdot (\frac{3}{5})^{k-1}$ for k = 1 to ∞.

$$\sum_{k=1}^{\infty} 10 \cdot (\frac{3}{5})_{k-1}$$

Sigma Notation & Infinite Geometric Series · 3

Evaluate the sum of $(-1)^k \cdot (2k + 1)$ for k = 1 to 8.

$$\sum_{k=1}^{8} (-1)^k \cdot (2k + 1)$$

Sigma Notation & Infinite Geometric Series · 4

An infinite geometric series has sum 10 and common ratio $\frac{1}{2}$. Find its first term.

Sigma Notation & Infinite Geometric Series · 5

Write the repeating decimal 0.555... as a fraction. (It is the infinite geometric series $\frac{5}{10} + \frac{5}{100} + \frac{5}{1000} + ...$)

Sigma Notation & Infinite Geometric Series · 6

A ball is dropped from a height of 20 m. After each bounce it rises to $\frac{1}{3}$ of its previous height. Find the total distance, in meters, the ball travels up and down before it comes to rest.

Sigma Notation & Infinite Geometric Series · 7

Evaluate the sum of $(\frac{1}{2})^k$ for k = 0 to 4.

$$\sum_{k=0}^{4} (\frac{1}{2})_k$$

Sigma Notation & Infinite Geometric Series · 8

Evaluate the sum of $k^2 - 2k + 4$ for k = 0 to 4.

$$\sum_{k=0}^{4} (k^2 - 2k + 4)$$

Sigma Notation & Infinite Geometric Series · 2

ANSWER

25

Sigma Notation & Infinite Geometric Series · 1

ANSWER

$$\frac{256}{5}$$

Sigma Notation & Infinite Geometric Series · 4

ANSWER

5

Sigma Notation & Infinite Geometric Series · 3

ANSWER

8

Sigma Notation & Infinite Geometric Series · 6

ANSWER

40

Sigma Notation & Infinite Geometric Series · 5

ANSWER

$$\frac{5}{9}$$

Sigma Notation & Infinite Geometric Series · 8

ANSWER

30

Sigma Notation & Infinite Geometric Series · 7

ANSWER

$$\frac{31}{16}$$

Find the sum of the infinite geometric series $100 + 60 + 36 + \ldots$, or write diverges if it has no sum.

Find the sum of the infinite geometric series $7 \cdot (-\frac{1}{2})^{k-1}$ for $k = 1$ to ∞.

$$\sum_{k=1}^{\infty} 7 \cdot \left(-\frac{1}{2}\right)_{k-1}$$

Evaluate the sum of $(-1)^k \cdot (k + 1)$ for $k = 1$ to 5.

$$\sum_{k=1}^{5} (-1)^k \cdot (k + 1)$$

An infinite geometric series has sum 4 and common ratio $-\frac{1}{4}$. Find its first term.

A ball is dropped from a height of 7 m. After each bounce it rises to $\frac{3}{4}$ of its previous height. Find the total distance, in meters, the ball travels up and down before it comes to rest.

Evaluate the sum of $3 \cdot (-2)^k$ for $k = 0$ to 5.

$$\sum_{k=0}^{5} 3 \cdot (-2)^k$$

Evaluate the sum of $k^2 + 2k - 3$ for $k = 1$ to 4.

$$\sum_{k=1}^{4} (k^2 + 2k - 3)$$

Find the sum of the infinite geometric series $18 + 6 + 2 + \ldots$, or write diverges if it has no sum.

Sigma Notation & Infinite Geometric Series · 10

ANSWER

$$\frac{14}{3}$$

Sigma Notation & Infinite Geometric Series · 9

ANSWER

250

Sigma Notation & Infinite Geometric Series · 12

ANSWER

5

Sigma Notation & Infinite Geometric Series · 11

ANSWER

-4

Sigma Notation & Infinite Geometric Series · 14

ANSWER

-63

Sigma Notation & Infinite Geometric Series · 13

ANSWER

49

Sigma Notation & Infinite Geometric Series · 16

ANSWER

27

Sigma Notation & Infinite Geometric Series · 15

ANSWER

38

Find the sum of the infinite geometric series $3 \cdot (-\frac{1}{4})^{k-1}$ for k = 1 to ∞.

$$\sum_{k=1}^{\infty} 3 \cdot (-\frac{1}{4})_{k-1}$$

Evaluate the sum of $(-1)^k \cdot (4k + 2)$ for k = 1 to 4.

$$\sum_{k=1}^{4} (-1)^k \cdot (4k + 2)$$

An infinite geometric series has sum 12 and common ratio $-\frac{1}{3}$. Find its first term.

Write the repeating decimal 0.222... as a fraction. (It is the infinite geometric series $\frac{2}{10} + \frac{2}{100} + \frac{2}{1000} + \ldots$)

A ball is dropped from a height of 4 m. After each bounce it rises to $\frac{3}{4}$ of its previous height. Find the total distance, in meters, the ball travels up and down before it comes to rest.

Evaluate the sum of $3 \cdot (\frac{1}{2})^k$ for k = 0 to 4.

$$\sum_{k=0}^{4} 3 \cdot (\frac{1}{2})_k$$

Evaluate the sum of $k^2 + 3k + 2$ for k = 0 to 4.

$$\sum_{k=0}^{4} (k^2 + 3k + 2)$$

Find the sum of the infinite geometric series 36 - 24 + 16 - ..., or write diverges if it has no sum.

Sigma Notation & Infinite Geometric Series · 18

ANSWER

$$8$$

Sigma Notation & Infinite Geometric Series · 17

ANSWER

$$\frac{12}{5}$$

Sigma Notation & Infinite Geometric Series · 20

ANSWER

$$\frac{2}{9}$$

Sigma Notation & Infinite Geometric Series · 19

ANSWER

$$16$$

Sigma Notation & Infinite Geometric Series · 22

ANSWER

$$\frac{93}{16}$$

Sigma Notation & Infinite Geometric Series · 21

ANSWER

$$28$$

Sigma Notation & Infinite Geometric Series · 24

ANSWER

$$\frac{108}{5}$$

Sigma Notation & Infinite Geometric Series · 23

ANSWER

$$70$$