

What is the sum of the first 12 terms of this geometric sequence?

5000, -500, 50, -5, ...

Practice

$$S_n = \frac{a(1-r^n)}{1-r} \text{ or } \frac{a(r^n-1)}{r-1}$$

What is the sum of the first 12 terms of this geometric sequence?

5000, -500, 50, -5, ...

$$S_{12} = \frac{5000 \left(\left(-\frac{1}{10} \right)^{12} - 1 \right)}{\left(-\frac{1}{10} - 1 \right)}$$

$$S_{12} = 4545.\overline{45}$$

$$a = 5000$$

$$r = \frac{-500}{5000} = -\frac{1}{10}$$

$$n = 12$$

Practice

$$S_n = \frac{a(1-r^n)}{1-r} \text{ or } \frac{a(r^n-1)}{r-1}$$

What is the sum of the first 8 terms of this geometric sequence?

3, 18, 108, ...

Practice

$$S_n = \frac{a(1-r^n)}{1-r} \text{ or } \frac{a(r^n-1)}{r-1}$$

What is the sum of the first 8 terms of this geometric sequence?

3, 18, 108, ...

$$a = 3$$

$$r = \frac{18}{3} = 6$$

$$n = 8$$

$$S_8 = \frac{3(6^8 - 1)}{6 - 1}$$

$$S_8 = 1,007,769$$

Practice

$$S_n = \frac{a(1-r^n)}{1-r} \text{ or } \frac{a(r^n-1)}{r-1}$$