Given an explicit, write a recursive

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Find terms using a given recursive rule

Given a sequence, write the recursive rule

Find the sum of the infinite geometric series
(or explain why it doesn't exist)

Express the series using summation notation. Find
the sum or explain why it doesn't exist.

Find the value of n.

Ans

7.) $\sum_{n=1}^{5} 4\left(\frac{3}{2}\right)^{n-1} = \frac{211}{4}$

4.) $\frac{5}{18}$

10.) $5 + 10 + 15 + \ldots + 90$ Arith

$d = 5$

$$S = \frac{n}{2}(a_1 + a_n)$$

$a_n = a_1 + (n-1)d$

$90 = 5 + (n-1)5$

$85 = 5n - 5$

$18 = n$

$$S = \frac{18}{2}(5 + 90)$$

Given a recursive, write an explicit.

$a_1 = 10$

$a_n = a_{n-1} + 3$

$a_n = 3n + 7$

$a_1 = 10$

$a_n = a_1 + (n-1)d$
$= 10 + (n-1)3$
$= 10 + 3n - 3$
$= 3n + 7$

$$a_1 = 10 \qquad\qquad \text{geo. } r = \frac{1}{2}$$

$$a_n = \frac{1}{2} a_{n-1}$$

Explicit

$$a_n = a_1 r^{n-1}$$

$$a_n = 10\left(\frac{1}{2}\right)^{n-1} \checkmark$$

$$= 10\left(\frac{1}{2}\right)^{n}\left(\frac{1}{2}\right)^{-1}$$

$$= 20\left(\frac{1}{2}\right)^{n}$$

Set A

$a_n = 2 - 5n$

Arith.

$a_1 = -3$

$a_n = a_{n-1} - 5$

Find the sum or explain why it doesn't exist.

$$-3 + 2 + -\frac{4}{3} + \frac{8}{9} + \ldots$$

$$r = -\frac{2}{3}$$

$$a_1 = -3$$

$$S = \frac{-3}{1 + \frac{2}{3}} = -\frac{9}{5}$$