

Practice Worksheet

The Book of Sand

Consider the sequence $\{a_n\}$ whose first six terms are:

$$\left\{ \frac{5}{2}, \frac{10}{3}, \frac{15}{4}, 4, \frac{25}{6}, \frac{30}{7}, \dots \right\}$$

1. Check whether the following statements are true or false.

Statement	T	F
The term a_4 can be written as $\frac{20}{5}$		
The general expression for the numerator is $5n$		
The expression for the denominator is n		
The expression for the denominator is $n + 1$		

2. Find a possible general term for $\{a_n\}$.

3. The following app (<https://www.geogebra.org/m/zuxt7xmd>) shows some terms of the sequence $\{a_n\} = \left\{ \frac{5n}{n+1} \right\}$ located on the number line. Move the slider to change the value of n and conjecture the limit of this sequence.

$$\lim_{n \rightarrow \infty} \frac{5n}{n+1} = \boxed{}$$

Solutions

Activity 1

1

T

F

T

F

T

2

$$a_n = \frac{5n}{n+1}$$

3

$$\lim_{n \rightarrow \infty} \frac{5n}{n+1} = 5$$