**Practice Worksheet**

The Book of Sand

Consider the sequence $\left\{a\_{n}\right\}$, whose first six terms are:

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

1. Indicate 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 5$n$  |  |  |
| The expression for the denominator is $n$  |  |  |
| The expression for the denominator is $n+1$  |  |  |

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

|  |  |
| --- | --- |
| $$\lim\_{n\to \infty } \frac{5n}{n+1} =$$ |  |

**Solutions**

 **Activity 1**

|  |  |  |
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| **1** |  | TFTFT |

|  |  |
| --- | --- |
| **2** | $$a\_{n}=\frac{5n}{n+1}$$ |

|  |  |
| --- | --- |
| **3** | $$\lim\_{n\to \infty } \frac{5n}{n+1}=5$$ |