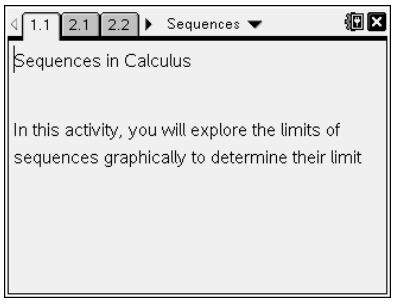
Sequences
Student Activity

Name _____

Class _____

Open the TI-Nspire document *Sequences.tns.*



Objective: To evaluate the limit of a sequence graphically.

Directions: For each of the sequences, find the limit by graphing the sequence on your TI-Nspire.

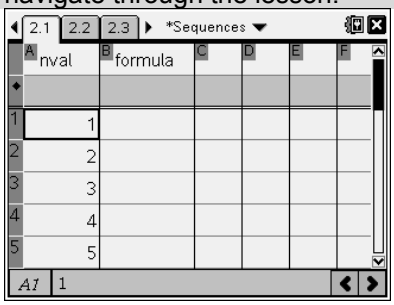
PART I

Follow the steps below to evaluate the limit for the example problem.

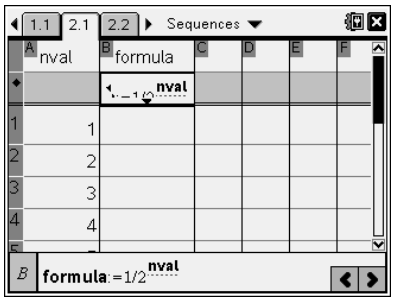
Example: Find the limit of $a_n = \frac{1}{2^n}$.

Move to page 2.1.

Press (ctrl) ▶ and (ctrl) ◀ to navigate through the lesson.



Step 1: This first page is a spreadsheet with the values 1 to 10 filled in for the term index values of a sequence.

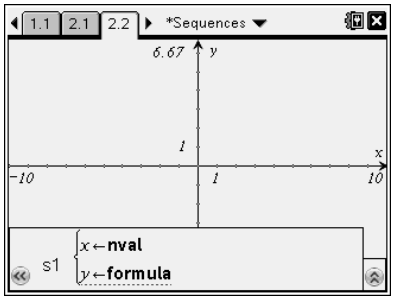


Step 2: Type the formula for the sequence in the box under the formula column.

Note: nval is the variable used for the values in column A. Use **nval** to represent the *n*-value in the sequence.

Step 3: Press (enter) to fill in the formula column.

Step 4: Move to page 2.2 to graph the sequence.



Note: To graph the sequence, select **Menu > Graph Type > Scatter Plot.** Next, press the (var) key and select **nval.** Next, tab to the *y* box, press the (var) key, and select **formula.** The sequence will be graphed.

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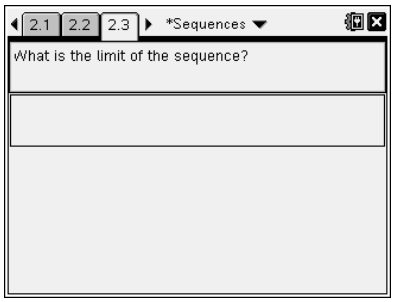
Step 5: Use (ctrl) ▶ to move to page 2.3 to write your answer for this question.



Note: If your teacher wants to record your answers in the TI-Nspire document, then move to the answer field by pressing the (tab) key and type your answer. Otherwise, record your answers below.

PART II

Directions: Find the limit of the following sequences graphically using your TI-Nspire handheld or software.

Note: The TI-NSpire document is set up for you to work on each question below in a different problem. If your teacher does not want you to record your answers in the TI-Nspire document, then you can record your answers below.

1. $a_n = \dfrac{2}{1-n^3}$

2. $a_n = \left(1+\dfrac{1}{n}\right)^n$

3. $a_n = 1-\dfrac{1}{n}$

4. $a_n = \dfrac{2-3n}{2+3n}$

5. $a_n = (-1)^n$