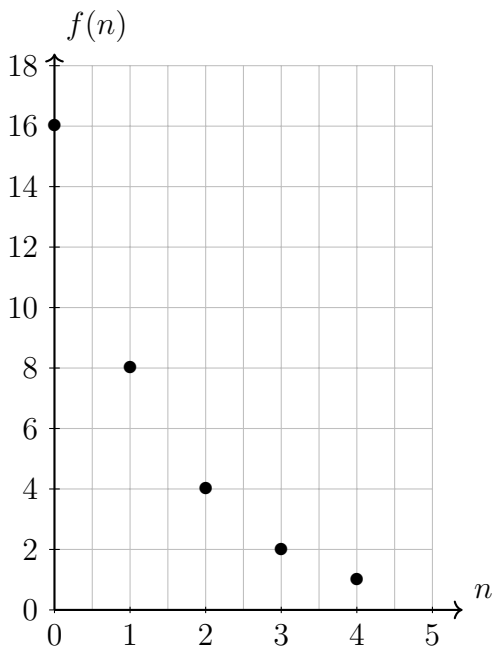
BECA / Huson / Algebra 2: Sequences and functions Name:
11 October 2023

1.13 PreTest2: Graphing sequences

1. A sequence f is shown below as a graph and as a table.



n	$f(n)$
0	16
1	8
2	4
3	2
4	1

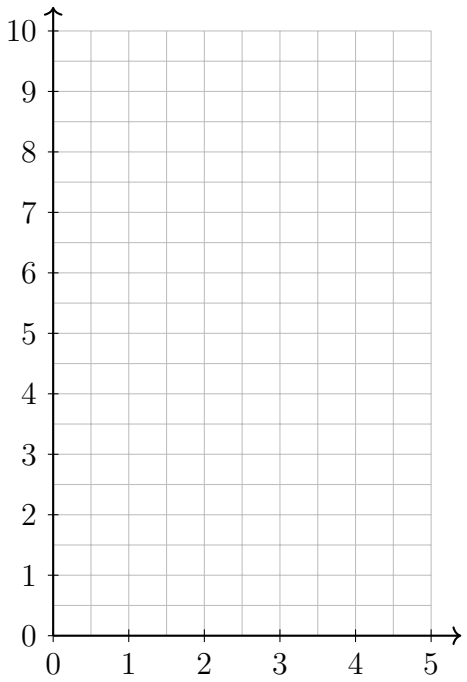
(a) Is sequence f geometric or arithmetic? Explain how you know.

(b) Write an equation to define sequence f recursively.

(c) For term $f(n)$, what are some values of n that make sense to use? What are some values of n that don't make sense to use? Explain your reasoning.

2. An arithmetic sequence A is shown below in the table.

n	$A(n)$
1	$\frac{7}{2}$
2	?
3	$\frac{13}{2}$
4	8
5	?



(a) What is the rate of change, the constant difference d?

(b) Find the missing values.

$A(2) =$

$A(5) =$

(c) Plot the sequence on the grid above.

(d) Write a recursive definition for sequence A.

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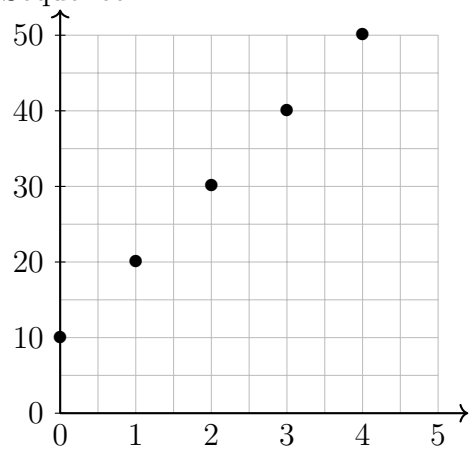
3. Here are two sequences:

Sequence A

term number	value
0	$\frac{1}{9}$
1	$\frac{1}{3}$
2	1
3	3
4	9

Sequence B



(a) For sequence A, describe a way to produce each new term from the previous term.

(b) For sequence B, describe a way to produce each new term from the previous term.

(c) Write a definition for the n^{th} term of sequence A. (an explicit formula, not a recursive one)

(d) Write a definition for the n^{th} term of sequence B.

(e) If these sequences continue, then which is greater, A or B? Explain or show how you know.

4. The first few terms of a geometric sequence B are shown in the table.

n	$B(n)$
0	$\frac{2}{3}$
1	-1
2	$\frac{3}{2}$
3	$-\frac{9}{4}$
4	?

(a) What is the growth rate, the constant ratio r?

(b) Find $B(4) =$

(c) Write a recursive definition for sequence B.

5. An arithmetic sequence has terms $h(1) = -2$ and $h(5) = 10$.

(a) What is the common difference, d?

(b) Write a formula for the n^{th} term, $h(n)$.

(c) What is the value of n when $h(n) = 22$?

6. A geometric sequence has terms $j(0) = \frac{16}{9}$ and $j(2) = 1$. Find $j(3)$.