

Directions:

- There was no Weekly Practice 9.
- Complete the exercises below and either write up or type up your solutions. Solutions must be submitted as PDF or Word documents, uploaded to the appropriate assignment area on Blackboard.
- If you choose to submit handwritten work, it must be neat and legible; if you do your handwritten work on paper, it must be **scanned to a PDF file** and submitted to Blackboard. Instructions and practice for scanning work to PDFs is given in the Startup Assignment. **Do not just take a picture, and do not submit a graphics file (JPG, PNG, etc.)** — such submissions will not be graded.
- Work that would receive a grade of “M” on the EMRN rubric will be given 10 engagement credits, and work that would ordinarily receive a grade of “R” will be given 5 engagement credits. No revisions will be allowed, but a key will be posted after the deadline passes.
- Every item must have a good-faith effort at a complete and correct response. If any item is left blank, or shows minimal effort (such as answering “I don’t know”), or is significantly incomplete, the entire assignment will be graded at 0 engagement credits.

1. For each of the sequences below,

- State whether the sequence is arithmetic, geometric, or neither;
- If the sequence is arithmetic, state the common difference; if geometric, state the common ratio;
- Give a recursive definition;
- Give a closed formula; and
- Find the sum of the first 100 terms.

For the last item, you are more than welcome to *check* your work with a computer, but you must show work here — in particular, use the summing techniques that we learned in class.

(a) 2, 5, 8, 11, 14, 17, 20, 23, 26, 29, . . .

(b) 6, 9, 13.5, 20.25, 30.375, 45.5625, . . .

2. Show, using the metgebraic simplification (debuted in class on November 18), that the closed formula $f(n) = \frac{19}{7}(-2)^n + \frac{9}{7}(5)^n$ is a solution to the recurrence relation $a_n = 3a_{n-1} + 10a_{n-2}$ with initial conditions $a_0 = 4$ and $a_1 = 1$.