### Lesson 7 Practice Problems

1. Here is the recursive definition of a sequence: $f\left(1\right)=10,f\left(n\right)=f\left(n−1\right)−1.5$ for $n\geq 2$.
	1. Is this sequence arithmetic, geometric, or neither?
	2. List at least the first five terms of the sequence.
	3. Graph the value of the term $f\left(n\right)$ as a function of the term number $n$ for at least the first five terms of the sequence.
2. An arithmetic sequence $k$ starts 12, 6, . . .
	1. Write a recursive definition for this sequence.
	2. Graph at least the first five terms of the sequence.
3. An arithmetic sequence $a$ begins 11, 7, . . .
	1. Write a recursive definition for this sequence using function notation.
	2. Sketch a graph of the first 5 terms of $a$.
	3. Explain how to use the recursive definition to find $a\left(100\right)$. (Don't actually determine the value.)
* (From Unit 1, Lesson 6.)
1. A geometric sequence $g$ starts 80, 40, . . .
	1. Write a recursive definition for this sequence using function notation.
	2. Use your definition to make a table of values for $g\left(n\right)$ for the first 6 terms.
	3. Explain how to use the recursive definition to find $g\left(100\right)$. (Don't actually determine the value.)
* (From Unit 1, Lesson 6.)
1. Match each recursive definition with one of the sequences.
	1. $h\left(1\right)=1,h\left(n\right)=2⋅h\left(n−1\right)+1$ for $n\geq 2$
	2. $p\left(1\right)=1,p\left(n\right)=2⋅p\left(n−1\right)$ for $n\geq 2$
	3. $a\left(1\right)=80,a\left(n\right)=\frac{1}{2}⋅a\left(n−1\right)$ for $n\geq 2$
	4. 80, 40, 20, 10, 5
	5. 1, 2, 4, 8, 16
	6. 1, 3, 7, 15, 31
* (From Unit 1, Lesson 5.)
1. For each sequence, decide whether it could be arithmetic, geometric, or neither.
	1. 25, 5, 1, . . .
	2. 25, 19, 13, . . .
	3. 4, 9, 16, . . .
	4. 50, 60, 70, . . .
	5. $\frac{1}{2},$ 3, 18, . . .
* For each sequence that is neither arithmetic nor geometric, how can you change a single number to make it an arithmetic sequence? A geometric sequence?
* (From Unit 1, Lesson 3.)



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