### Lesson 3 Practice Problems

1. Here are the first two terms of some different arithmetic sequences:
   1. -2, 4
   2. 11, 111
   3. 5, 7.5
   4. 5, -4

* What are the next three terms of each sequence?

1. For each sequence, decide whether it could be arithmetic, geometric, or neither.
   1. 200, 40, 8, . . .
   2. 2, 4, 16, . . .
   3. 10, 20, 30, . . .
   4. 100, 20, 4, . . .
   5. 6, 12, 18, . . .
2. Complete each arithmetic sequence with its missing terms, then state the rate of change for each sequence.
   1. -3, -2, \_\_\_, \_\_\_, 1
   2. \_\_\_, 13, 25, \_\_\_, \_\_\_
   3. 1, .25, \_\_\_, -1.25, \_\_\_
   4. 92, \_\_\_, \_\_\_ ,\_\_\_, 80
3. A sequence starts with the terms 1 and 10.
   1. Find the next two terms if it is arithmetic: 1, 10, \_\_\_, \_\_\_.
   2. Find the next two terms if it is geometric: 1, 10, \_\_\_, \_\_\_.
   3. Find two possible next terms if it is neither arithmetic nor geometric: 1, 10, \_\_\_, \_\_\_.
4. Complete each geometric sequence with the missing terms. Then find the growth factor for each.
   1. \_\_\_, 5, 25, \_\_\_, 625
   2. -1, \_\_\_, -36, 216, \_\_\_
   3. 10, 5, \_\_\_, \_\_\_, 0.625
   4. \_\_\_, \_\_\_, 36, -108, \_\_\_
   5. \_\_\_, 12, 18, 27, \_\_\_

* (From Unit 1, Lesson 2.)

1. The first term of a sequence is 4.
   1. Choose a growth factor and list the next 3 terms of a geometric sequence.
   2. Choose a *different* growth factor and list the next 3 terms of a geometric sequence.

* (From Unit 1, Lesson 2.)

1. Here is a rule that can be used to build a sequence of numbers once a starting number is chosen: Each number is two times three less than the previous number.
   1. Starting with the number 0, build a sequence of 5 numbers.
   2. Starting with the number 3, build a sequence of 5 numbers.
   3. Can you choose a starting point so that the first 5 numbers in your sequence are all positive? Explain your reasoning.

* (From Unit 1, Lesson 1.)



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