

## Lesson 1 Practice Problems

1. Select **all** sequences that could be geometric.
  - A. 2, 4, 7, 11, ...
  - B.  $\frac{1}{3}$ , 1, 3, 9, ...
  - C. 1, 3, 5, 7, ...
  - D.  $\frac{1}{2}$ , 2, 8, 32, ...
  - E. 1,000, 200, 40, 8, ...
  - F. 999, 899, 799, 699, ...
2. A blogger had 400 subscribers to her blog in January. The number of subscribers has grown by a factor of 1.5 every month since then. Write a sequence to represent the number of subscribers in the 3 months that followed.
3. Tyler says that the sequence 1, 1, 1,... of repeating 1s is not exponential because it does not change. Do you agree with Tyler? Explain your reasoning.
4. In 2000, an invasive plant species covered 0.2% of an island. For the 5 years that followed, the area covered by the plant tripled every year.

A student said, "That means that about half of the island's area was covered by the plant in 2005!"

Do you agree with his statement? Explain your reasoning.

5. A square picture with side length 30 cm is scaled by 60% on a photocopier. The copy is then scaled by 60% again.

a. What is the side length of the second copy of the picture?

b. What is the side length of the picture after it has been successively scaled by 60% 4 times? Show your reasoning.

6. A geometric sequence  $g$  starts 5, 15, . . . . Explain how you would calculate the value of the 50th term.

(From Unit 1, Lesson 8.)

7. Select **all** the expressions equivalent to  $9^4$ .

A.  $3^6$

B.  $3^8$

C.  $9^2 \times 9^2$

D.  $\frac{9^4}{9^{-2}}$

E.  $3^4 \times 3^4$

(From Unit 3, Lesson 1.)