Name: _____   Date: _____

6.7 Geometric Series

1. Determine the sum of each geometric series.
   a) $a = 4, r = 2, n = 11$
   b) $a = -3, r = \dfrac{1}{2}, n = 6$
   c) $a = \dfrac{1}{4}, r = 3, n = 8$
   d) $f(1) = 1, r = -2, n = 10$

2. Determine the sum for each given geometric series.
   a) $3 + 6 + 12 + 24 + 48 + \ldots + 6144$
   b) $2 + 6 + 18 + 54 + \ldots + 13\ 122$
   c) $100 - 50 + 25 - \dfrac{25}{2} + \ldots + \dfrac{25}{16}$
   d) $800 + 200 + 50 + \ldots + 0.195\ 312\ 5$

3. The sum of the first two terms in a geometric series is 12. The sum of the first three terms of the same series is 62. Determine the first four terms of the series.

4. The first term in a geometric series is 4 and the sum of the first three terms of the series is 64. Find the sum of the first eight terms of the series.

5. In a shuttle run for her gym class, Rhonda must start from one line, run 1 m forward and return to the start line, then turn around and run 2 m forward and return, then run 4 m forward and return and so on. If her final run is out 16 m and then return, what distance will she have covered in the run?

6. If a child is paid $0.01 on the first day for doing her chores, $0.02 the second day, $0.03 the third day, and so on for 15 days, how much in total will she be paid?

7. First prize in a lottery is $400 000. The second prize is 40% of the first prize, or $160 000. The third prize is 40% of the second prize, and so on. There are five prizes. Determine the total amount paid out.

8. Sissa Dahir is considered by many to be the inventor of chess. For his invention, it is said that an Indian king offered him anything he wished. Sissa asked for grains of wheat to be given to him as follows:
   • For the first square on the board, he wished to be given 1 grain of wheat.
   • For the second square on the board, he wished to be given 2 grains of wheat.
   • For the third square, he wished to be given 4 grains of wheat, and so on for all 64 squares on the board.

If one grain of wheat has a mass of 60 mg, what was the total mass of wheat owed to Sissa, measured in kilograms? Express your answer in scientific notation.