Tutor-USA.com Worksheet **Name:** _____
Geometric Progressions **Date:** _____ **Period:** _____ **Score:** _____

Write out the next 3 terms in each geometric progression, and find t_n and S_n.

1) $1, 4, 16, \ldots$ to 8 terms

2) $^1/_{125}, -^1/_{25}, ^1/_5$ … to 7 terms

Find the missing elements in each geometric progression.

3) $t_1 = 2, r = 3, n = 6$

4) $t_1 = 1, n = 3, S_n = 13$

5) $r = ^1/_3, n = 5, S_n\ ^4/_9$

6) $t_1 = -2, r = 2, t_n = -64$

7) What are the first 3 terms of the geometric progression whose 3rd term is $^{25}/_4$ and 7th term is $^4/_{25}$?

8) In the geometric progression $18, -12, 8$ …, which term is $^{512}/_{729}$?

9) Insert 3 geometric means (the terms between any 2 terms) between $^{27}/_{8}$ and $^{2}/_{3}$.

10) What is the geometric mean of the 2 numbers a and b?

11) A rubber ball is dropped from a height of 9 feet. If it rebounds $^{1}/_{3}$ of the distance it has fallen after each fall, how far will it rebound the 6th time?

12) An automobile purchased for $3 000 depreciates 12% every year in value. Find its value at the end of 5 years.

Answer Key

1) $64, 256, 1024;\ t_n = 16\,384,\ S_8 = 21\,845$
2) $-1, 5, -25;\ t_n = 125, S_7 = {}^{13\,021}/_{125}$
3) $t_n = 486, S_6 = 728$
4) $r = 3$ or $-4;\ t_n = 9$ or 16
5) $t_1 = {}^{36}/_{121};\ t_n = {}^{4}/_{1089}$
6) $n = 6; S = -126$
7) $t_1 = {}^{625}/_{16}, {}^{125}/_{8}, {}^{25}/_{4}$
8) $n = 9$
9) $\pm {}^{9}/_{4},\ {}^{3}/_{2}, \pm 1$
10) $\pm\sqrt{ab}$
11) ${}^{1}/_{81}$ feet
12) \$1 583

