



Name _____ Date _____ Period _____

SEQUENCES & SERIES WORKSHEET

Arithmetic: $a_n = a_1 + (n-1)d$
 $S_n = \frac{n(a_1 + a_n)}{2}$

Geometric: $a_n = a_1 r^{n-1}$
 $S_n = \frac{a_1(1-r^n)}{r-1}$

Use the formulas provided to you to complete the following. Determine what type of sequence the following are and then complete the problem.

1. $a=-5, d=4, n=9$; find the n^{th} term
2. $a=5, n=4, r=3$; find the n^{th} term
3. $a=3, d=-4, n=6$; find the n^{th} term
4. $a=-4, n=6, r=-2$; find the n^{th} term

Find the missing terms in each sequence. You are given what type of sequence represents each one.

5. _____, _____, 2, _____, _____, 54 (geometric)
6. 3, _____, _____, 20 (arithmetic)
7. 5, _____, _____, 27 (arithmetic)
8. 32, _____, _____, _____, 162 (geometric)
9. _____, -10, _____, _____, _____, 14 (arithmetic)
10. Find the 15th term for the arithmetic sequence $-3, 3, 9, \dots$
11. Find the first 4 terms of the geometric sequence with $a = -6$ and $r = -\frac{2}{3}$

Find S_n for each series described. You will need to determine if the series is arithmetic or geometric.

12. $160 + 80 + 40 + \dots, n = 6$

13. $a = 5, r = -\frac{1}{2}, n = 7$

14. $a = 13, d = -6, n = 21$

15. $d = -\frac{2}{3}, n = 16, a_n = 44$

Find “a” for each geometric series.

16. $S_n = -55, r = -\frac{2}{3}, n = 5$

17. $S_n = 2457, a = 3072, r = -4$

Find the first 3 terms of each arithmetic series.

18. $a = 14, a_n = -85, S_n = -1207$

19. $n = 16, a_n = 15, S_n = -120$