Algebra II 11.5-11.7 Review **Name**_____

Tell whether the sequence is arithmetic. If not, explain why.

1. $1, 0, -1, -2, -3, \ldots$

2. $20, 10, 5, 2.5, 1.25, \ldots$

3. $8, 13, 19, 26, 33, \ldots$

Find the first 4 terms for the following arithmetic sequences.

4. $a_1 = 10,\ d = -4$

5. $a_n = -6 + 3n$

For the following arithmetic sequences, find a_1 and d.

6. $7, 10, 13, 16, \ldots$

$a_1 =$ _____ $d =$ _____

7. $2.6, -1.4, -5.4, \ldots$

$a_1 =$ _____ $d =$ _____

Write a rule for the *n*th term of the arithmetic sequence. $a_n = a_1 + d(n-1)$

8. $a_1 = 6,\ d = -2$

9. $2, 6, 10, 14$

10. $\frac{1}{3}, \frac{2}{3}, 1, \frac{4}{3}$

Find the sum of the arithmetic series. $s_n = \frac{n}{2}(a_1 + a_n)$

11. $a_1 = 42,\ a_n = 31,\ n = 16$

12. $a_1 = 40,\ d = -3,\ n = 14$

13. $2 + 6 + 10 + \ldots + 58$

(hint: find n first using $a_n = a_1 + d(n-1)$**)**

Tell whether the sequence is geometric. If not, explain why.

14. $\frac{1}{3}, \frac{2}{3}, \frac{3}{3}, \frac{4}{3}, \ldots$

15. $5, -10, 20, -40, 80, \ldots$

Find the first four terms of each geometric sequence.

16. $a_1 = 3,\ r = -2$

17. $a_n = 36\left(\frac{1}{2}\right)^{n-1}$

Write a rule for the *n*th term of the geometric sequence. $a_n = a_1(r)^{n-1}$

18. $a_1 = 9,\ r = -3$.

19. $2, 4, 8, 16, \ldots$

20. $5, -10, 20, -40, \ldots.$

Find the indicated term. $a_n = a_1(r)^{n-1}$

21. $a_2 = 200,\ r = 5$ Find a_9 **(hint: find a_1 first)**

22. $a_2 = -7,\ r = \frac{1}{2}$ Find $n = 5$. **(hint: find a_1 first)**

Find the sum of the geometric series. $s_n = \frac{a_1\left(1-(r)^n\right)}{(1-r)}$

23. $a_1 = \frac{1}{3},\ r = 3,\ n = 10$

24. $10 + 1 + \frac{1}{10} + \frac{1}{100} + \frac{1}{1000}$

Find s_5 .

25. $10+2+\frac{2}{5}+\frac{2}{25}+\frac{2}{125}$

26. $2+4+8+\ldots$

Find s_5.

Find the sum of the following infinite geometric series. $s_n=\frac{a_1}{(1-r)}$ **... remember** $-1<r<1$

27. $2+\frac{2}{3}+\frac{2}{9}+\frac{2}{27}\ldots$

28. $\sum_{1}^{\infty}3\left(\frac{1}{4}\right)^{n-1}=$

29. $\sum_{1}^{\infty}2(3)^{n-1}=$

30. You drop a ball from a basketball rim (10ft above the ground), each time the ball hits the ground it bounces $\frac{3}{4}$ the previous height. How far does the ball travel if it bounces 15 times?