**Algebra 2 CP Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Practice Worksheet**

**12.2 – 12.3 Assignment\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

***Tell whether the following sequences are arithmetic or geometric, find the next term in the sequence, and then find d or r.***

1. 3, 12, 48, 192, 768,... 2. -3, -1, 1, 3, 5, ...

3. 100, 50, 25, ,... 4. 8, 4, 0, -4, -8, -12, ...

***Determine whether the sequence is arithmetic or geometric, write a rule for the nth term of the sequence, and then find a8.***

5. -25, -29, -33, -37, .... 6. 6, 2, , , , ...

7. 2, 8, 32, 128, ... 8. 4, 8, 12, 16, ...

9. 7, 10, 13, 16,… 10. 3, 12, 48, 192,…

***Write a rule for the nth term of the arithmetic or geometric sequence. Then find a20***

11. *a*5 = 15 and *d* = 5 12. *a*2 = 6 and *r* = 2

13. *a*10 = 150 and *d* = -5 14. *a*2 = 2, *r* = 

***Write a rule for the nth term of the arithmetic sequence given two terms.***

15. *a*20 = 240, *a*15 = 170 16. *a*16 = 6, *a*20 = 7

***Write a rule for the nth term of the geometric sequence given two terms.***

17. *a*2 = 36, *a*4 = 576 18. *a*2 = 4, *a*5 = 

***Find the sum of the following arithmetic series.***

19. 3 + 6 + 9 + 12 + 15 + 18 +... ; *n* = 25 20. -1 + 2 + 5 + 8 + 11 + 14 + ... ; *n* = 20







9

4

30)

6

(

*i*

*i*









20

1

14)

2

(

*i*

*i*

21. 22.

***Find the sum of the following geometric series.***

23.  ; *n* = 15 24. 1000 + 500 + 250 + 125 + ... ; *n* = 20



1

7























8

1

1

3

1

90

*i*

*i*

1000







25. 26.

*i*

2

0







**Answers**

1. geometric, r = 4, a6= 3072 2. arithmetic, d = 2, a6 = 7 3. geometric, r = $\frac{1}{2}$, a6= $\frac{25}{8}$

4. arithmetic, d = -4, a6 = -16 5. $a\_{n}=-4n-21, a\_{8}=-53$ 6. $a\_{n}=6\left(\frac{1}{3}\right)^{n-1}, a\_{8}=\frac{2}{729}$

7. $a\_{n}=2\left(4\right)^{n-1}, a\_{8}=32, 768$ 8. $a\_{n}=4n, a\_{8}=32$ 9. $a\_{n}=3n+4 a\_{8}=28$

10. $a\_{n}=3\left(4\right)^{n-1}, a\_{8}=49, 152$ 11. $a\_{n}=5n-10, a\_{20}=90$ 12. $a\_{n}=3\left(2\right)^{n-1}, a\_{20}=1,572,864$

13. $a\_{n}=-5n+200, a\_{20}=100$ 14. $a\_{n}=4\left(\frac{1}{2}\right)^{n-1}, a\_{20}=\frac{1}{131,072}$ 15. $a\_{n}=14n-40$

16. $a\_{n}= \frac{1}{4}n+2$ 17. $a\_{n}=9\left(4\right)^{n-1}, a\_{n}=-9\left(-4\right)^{n-1}$ 18. $a\_{n}=3\left(\frac{4}{3}\right)^{n-1}$

19. $S\_{25}=975$ 20. $S\_{20}=550$ 21. $S\_{20}=-140$

22. $S\_{6}=54$ 23. $S\_{15}=\frac{32767}{2}$ 24. $S\_{20}=\frac{7339993}{3670}$

25. $S\_{8}=\frac{32800}{243}$ 26. $S\_{8}=\frac{31875}{16}$