Name _____ Date _____

Trig – Unit 12 – Sequence and Series – Unit Review

Write each series using sigma Σ notation.

1) 2 + 5 + 8 + 11 1) _____

2) 3 + 2 + 1 + 0 + (−1)+ (−2) 2) _____

3) 2 + 4 + 8 + 16 + … 3) _____

4) 1 + 4 + 9 + 16 + 25 4) _____

5) 1 + 2 + 6 + 24 + 120 5) _____

6) (1)(3) + (4)(8) + (6)(15) + (4)(24) + (1)(35) 6) _____

7) 7 + 14 + 23 + 34 + 47 7) _____

Write using #'s 1 and 3 using a recursive formula.

2 + 5 + 8 + 11 _____

2 + 4 + 8 + 16 + … _____

8) Write 1, 1, 2, 3, 5, 8, 13, 21, … using a recursive formula. 8) _____

Find the specified term of each sequence.

9) 3, 7, 11, 15, … a_{16} **9)** _____

10) 3, 6, 12, 24, …a_{13} 10) _____

11) 2, 1, ½, ¼, … a_{16} 11) _____

12) 4, -5, -14, -23, …a_{18} 12) _____

13) 1, 5/6, 25/36, … a_{14} **13)** _____

14) log2, log4, log8, …a_{13} **14)** _____

15) Find two arithmetic means between 8 and 17. **15)** _____

16) Find two geometric means between 4 and ½. **16)** _____

17) 2 + (-2)+ (-6)+ (-10)… Find the sum of the first 22 terms. **17)** _____

18) 5 + 15 + 45 + … Find the sum of the first 17 terms. **18)** _____

19) Find the sum of the first 60 natural numbers. **19)** _____

20) Find the sum of the first 40 even positive integers. **20)** _____

21) Find the sum of the first 50 odd positive integers. **21)** _____

<u>Find the sum of each series.</u>

22) **22)** _____

$$\sum_{1}^{34}(2x+3)$$

23) $\sum_{0}^{17}(3)^x$ **23)** _____

24) $\sum_{1}^{4} x!$ **24)** _____

25) $\sum_{1}^{\infty}\left(\frac{1}{2}\right)^x$ **25)** _____

26) $\sum_{0}^{67}(-4x-3)$ **26)** _____

<u>Write repeating decimal as a fraction.</u>

27) $.\overline{7}$ 27) _____

28) $0.\overline{78}$ 28) _____

29) $0.\overline{315}$ 29) _____

30) $0.1\overline{9}$ 30) _____

31) $0.1\overline{56}$ 31) _____

32) $2.\overline{213}$ 32) _____

33) $0.\overline{8765432}$ 33) _____

Simplify or evaluate the following:

34) $\frac{6!}{5!4!}$ 34) _____

35) $\frac{(n+2)!}{(n+1)!}$ 35) _____

36) Expand the following: $(x-4y)^5$

37) Find the tenth term for $(2x+b)^{15}$

38) Find the 7th term for $\left(x\sqrt{3}-5y\right)^8$