11U - U7 Review (Multiple Choice Only)

Note: The test will have a max of 5 multiple choice and 5 to 7 problems. Solutions to the review will be posted Tuesday. Don't leave this until the last minute!

Formulas:

Arithmetic Sequences

Recursive: $t_1 = a, \quad t_n = t_{n-1} + d$

General Term $t_n = a + (n-1)d$

Geometric Sequences

Recursive: $t_1 = a, \; t_n = r \cdot t_{n-1}$

General Term: $t_n = a \cdot r^{n-1}$

Arithmetic Series

General: $S_n = \dfrac{n\left(2a + (n-1)d\right)}{2}$

Know Last Term: $S_n = \dfrac{n\left(t_1 + t_n\right)}{2}$

Geometric Series

General: $S = \dfrac{a\left(r^n - 1\right)}{(r-1)}$

Know Last Term: $S_n = \dfrac{t_{n+1} - t_n}{(r-1)}$

Make sure you know how to do problems like Example 7.1.5!

Review:
Multiple Choice

____ 1. What is the 10th term of the sequence: 1, 4, 7, 10, 13, … ?
   a. 27 c. 28
   b. 31 d. 25

____ 2. If the first term of a sequence is 3 and the common difference is 4, what is the 23rd term in the sequence?
   a. 88 c. 95
   b. 87 d. 91

____ 3. The 11th term of a sequence is 24. If the first term is 374, then what is the common difference?
   a. –35 c. –34
   b. –27 d. –28

____ 4. Determine the number of terms in the sequence: 5240, 4365, 3490, 2615, ..., –2635
   a. 8 c. 11
   b. 10 d. 9

____ 5. The 13th term of a sequence is 8, and the 17th term is 8. What is the 25th term?
   a. 4 c. 8
   b. 25 d. 0

____ 6. Determine the general form for the arithmetic sequence whose 5th term is 10 and consecutive terms decrease by 4.

a. $22 - 4(n - 1)$
c. $26 - 4(n - 1)$
b. $-2 + 4(n - 1)$
d. $-6 + 4(n - 1)$

____ 7. What is the general term of the sequence: 6, 42, 294, 2058,14406, …

a. $t_n = 6(7)^n$
c. $t_n = 6(7)^{n-1}$
b. $t_n = 6(6)^{n-1}$
d. $t_n = 7(6)^{n-1}$

____ 8. What is the 6th term of the sequence: $\frac{1}{2}, \frac{2}{3}, \frac{8}{9}, \frac{32}{27}, \ldots$

a. $\frac{4096}{729}$
c. $\frac{1024}{243}$
b. $\frac{2048}{729}$
d. $\frac{512}{243}$

____ 9. If the 9th term in a geometric sequence is 45 927 and the common ratio is 3, then what is the first term?

a. 7
c. 6
b. 8
d. 9

____ 10. If the 8th term of a sequence is 256, and the 5th term of the sequence is 32, what is the common ratio?

a. 2
c. –2
b. 4
d. $\frac{1}{2}$

____ 11. How many terms are in the geometric sequence: 2, 6, 18, 54, ..., 118 098

a. 8
c. 10
b. 9
d. 11

____ 12. Determine the sum of the arithmetic sequence: 5 + 18+ 31 + 44 + ... +. 161.

a. 1079
c. 996
b. 1992
d. 2158

____ 13. Calculate the sum of the first 15 terms of an arithmetic sequence with third term 14 and common difference –9.

a. –585
c. 434
b. –465
d. –824

____ 14. Calculate the sum of the first 20 terms of an arithmetic sequence with 3rd term 8 and 8th term 143.

a. 8420
c. 4210
b. 5400
d. 4480

____ 15. Determine S_{26} for the series: –452 – 396 – 340 – 284 – ...

a. 6448
c. 12298
b. 7176
d. 6200

____ 16. Determine the sum of the first 15 terms of the arithmetic series whose 5th term is 4 and consecutive terms increase by 3.

a. 195
c. 182
b. 285
d. 169

____ 17. A brick layer building a trapezoidal wall starts with a base of 250 bricks and decreases the number of bricks by 5 each layer up. How many bricks does he need to make the wall 26 layers high?

a. 4550
c. 4688
b. 4875
d. 5200

____ 18. Determine the sum of the geometric series 3 + 15 + 75 + 375 + ... + 46 875.

a. 58 593
c. 19 531
b. 11 718
d. 292 968

____ 19. Calculate the sum of the first 6 terms of the geometric series with 3rd term 6 and common ratio $\frac{2}{3}$.

a. $\frac{1330}{243}$
c. $\frac{665}{18}$
b. $\frac{211}{6}$
d. $\frac{665}{729}$

____ 20. Calculate the sum of the first 7 terms of the geometric series with first term 2 and 4th term 250.

a. 7812
c. 19 531
b. 195 312
d. 39 062

____ 21. Calculate the sum of the first 8 terms of the geometric series whose 3rd term is 5 and 6th term is 40.

a. $\frac{1275}{4}$
c. $\frac{1275}{2}$
b. $\frac{635}{4}$
d. $\frac{635}{2}$

____ 22. Determine the sum of the first 7 terms of the geometric series whose 3rd terms is 4 and consecutive terms increase by a factor of $\frac{3}{2}$.

a. $\frac{2059}{64}$
c. $\frac{665}{18}$
b. $\frac{665}{2}$
d. $\frac{2059}{36}$

____ 23. A population of rabbits if left unchecked will triple every three months. If there are initially only 2 rabbits, how many will there be in a year and a half?

a. 1458
c. 729
b. 486
d. 2187