

518 Sequences and Series Review

<p><u>Arithmetic Sequence</u></p> <ul style="list-style-type: none"> • Explicit formula $t_n =$ • Recursive formula $t_n =$ $t_1 =$ 	<p><u>Arithmetic Series</u></p> <ul style="list-style-type: none"> • $S_n =$ • $\sum_{k=1}^n t_k = t_1 + t_2 + t_3 + \dots + t_n$
<p><u>Geometric Sequences</u></p> <ul style="list-style-type: none"> • Explicit formula $t_n =$ • Recursive formula $t_n =$ $t_1 =$ 	<p><u>Geometric Series</u></p> <ul style="list-style-type: none"> • $S_n =$ • $\sum_{k=1}^n t_k = t_1 + t_2 + t_3 + \dots + t_n$
<p><u>Arithmetic mean</u> Ex.1) Find arithmetic mean of 5 and 10</p> <p>Ex. 2) the 2 arithmetic mean of 6 and 12</p> <p>Ex 3) the 3 arithmetic mean of 8 and 16.</p>	<p><u>Geometric mean</u> Ex. 1) Find geometric mean of 2 and 18.</p> <p>Ex. 2) the 2 geometric mean of 4 and 32.</p> <p>Ex. 3) the 3 geometric mean of 2 and 1250.</p>

For each problem 1 - 4, answer a - e, find

a. The common difference-d or common ratio-r.

b. The explicit formula

c. The recursive formula

d. t_{25}

e. S_{25}

1. For the sequence 9, 6, 3, 0, ...

a.

b.

c.

d.

e.

2. For the sequence 4, 6, 9, 13.5, ...

a.

b.

c.

d.

e.

3. For $t_5 = 8$ and $t_9 = 28$ are terms of an arithmetic sequence,

a.

b.

c.

d.

e.

4. For $t_2 = 1000$ and $t_5 = 125$ are terms of a geometric sequence,

a.

b.

c.

d.

e.

5. List the next 5 terms for $\begin{matrix} t_n = t_{n-1} + 2n \\ t_1 = 3 \end{matrix}$.

6. Evaluate $\sum_{n=1}^5 (n^2 - n) =$
(This is not arithmetic or geometric)

7. Evaluate $11+8+5+2+\dots+(-22)$

8. Evaluate $\sum_{k=1}^{10} 4(5)^{k-1} =$
(Hint: what type of series is this?)

9. A ball is dropped from a height of 8ft. It bounces back up one-half of its original height and falls again. If the ball keeps bouncing in this manner, what is the total distance ball travels up to the 10th bounce? (round to 2nd decimal)

10. Evaluate S_{25} of $3+6+9+12+\dots$

11. Find the sum of the multiples of 9 from 9 to 657 inclusive.

(9, 18, 27, ... 657)

12. For the sequence 33, 24, 15, 6, ~~-3~~... Jeff claims that -333 is one of the terms of the sequence. Alicia says he is out of his mind and it **does not** belong in the sequence. Who is right and explain or show how you know?
13. A virus goes through a computer infecting files. One file was infected initially and the total number of files infected doubles every minute.
- Write an explicit formula for the number of files infected at any given (n) minute.
 - Use an explicit formula to find the total files infected after 20 minutes.
14. There are 28 seats in the front row of a theater. Each successive row contains two more seats than the previous row.
- If there are 24 rows, how many seats are in **last row** of the theater?
 - How many seats in **total**?

*HW: Finish Review Packet
and*

Make notecard with formulas and/or example problems: to be collected for +2 points towards your test