

## Today's Learning Goal(s):

By the end of the class, I will be:

- a) prepared for the Unit 7 Summative on Thursday.

Last day's work: pp. 466 #1 – 3, (4 – 5)ace, 6, 8, 10  
& Begin Review

### SEQUENCES AND SERIES REVIEW (WHITE BOARD)

Formulas to remember:

#### Arithmetic series

#### Arithmetic Sequence

General Term:  $t_n = a + (n-1)d$        $S_n = \frac{n[2a + (n-1)d]}{2}$        $S_n = \frac{n}{2}[t_1 + t_n]$

Recursive Formula:  $t_1, t_n = t_{n-1} + d, n > 1, n \in \mathbb{N}$

(n must be greater than 1)      (n is a natural number)

#### Geometric Sequence

#### Geometric Series

General Term:  $t_n = ar^{n-1}$        $S_n = \frac{a(r^n - 1)}{r - 1}$

Recursive Formula:  $t_1, t_n = rt_{n-1}, n > 1, n \in \mathbb{N}$

Pascal's Triangle: Patterns and application of binomial expansion

$$(a + b)^n$$

1. Determine if the following sequence is arithmetic, geometric or neither.  
Determine the general term for the sequence.  
Write the recursive formula.

a) 29, 21, 13, ...

i) determine  $t_{10}$

b) 23, -46, 92, ...

i) determine  $t_{10}$

2. Determine the general term for the arithmetic sequence if...

a)  $t_1 = 13$  and  $d = -7$

b)  $t_5 = 91$  and  $t_7 = 57$

3. Determine the general term for the geometric sequence if ...

a) the first term is 144 and the second term is 36

b)  $t_5 = 45$  and  $t_8 = 360$

4. Calculate the sum of the first 10 terms in each series.

a)  $-103 - 110 - 117 - \dots$

b)  $8 - 24 + 72 - \dots$

5. Determine the sum of the first 7 terms of the geometric series if ...

a) the third term is 18 and the terms increase by a factor of 3

b)  $t_5 = 5$  and  $t_8 = -40$

6. Determine the sum of the first 7 terms of the arithmetic series if ...

a)  $t_1 = 31$  and  $t_{20} = -102$

b)  $t_7 = 43$  and  $t_{13} = 109$

7.R

3UI Sequence and Series Review

7. Determine the number of terms in the sequence  
-63, -57, -51, - ... , 63

8. Determine the sum of the geometric series.

$$17 - 51 + 153 - \dots - 334\ 611$$

9. At a fish hatchery, fish hatch at different times even though the eggs were all fertilized at the same time. The number of fish that hatched on each of the first four days after fertilization was 2, 10, 50, and 250, respectively. If the pattern continues, calculate the total number of fish hatched during the first 10 days.

10. Use Pascal's triangle to expand  $(3x - 2y)^4$ .