

Algebra II Test 12.1 - 12.3

1. (10 points)

Evaluate the series $\sum_{k=1}^{14} k$. Use the summation formulas: $\sum_{k=1}^n k = \frac{n(n+1)}{2}$

2. (10 points)

Find the first 5 terms of the sequence shown below:

$$a_n = 2^n - 6$$

_____, _____, _____, _____, _____

3. (10 points)

Show your work and find the missing terms in the arithmetic sequence shown below:

17, _____, _____, _____, 49.

4. (10 points)

Find the first 5 terms of the sequence with conditions shown below:

$$a_1 = 3$$

$$a_n = 2a_{n-1} - 5 \text{ for } n \geq 2.$$

_____, _____, _____, _____, _____

Name: _____

ID: A

5. (10 points)

Given the sequence below, answer each:

7, 11, 17, 22, 26, ...

A). The sequence is arithmetic *Yes* or *No* (circle your choice)

B). Find the common difference if yes: _____

C). Find the next three terms in the sequence. _____, _____, _____

6. (10 points)

Write the arithmetic series $5 + 1 - 3 - 7 - 11 - 15 - 19$ in summation (sigma) notation.

Answer: _____

7. (10 points)

There are 256 players competing in a national chess championship tournament. The players compete until there is 1 winner. How many matches must be scheduled in order to complete the tournament?

8. (10 points)

Find the 5th term of the arithmetic sequence with the conditions given below:

$$a_{10} = 160$$

$$a_{13} = 214$$

5th term: _____

Name: _____

ID: A

9. (10 points)

Given the series below, answer each:

$$\sum_{k=3}^7 (-1)^k (8-k)k$$

A). Expand the series (list the terms): _____, _____, _____, _____, _____

B). Evaluate the series: _____

10. (10 points)

Find the sum for the arithmetic series shown below using the formula $S_n = n \left(\frac{a_1 + a_n}{2} \right)$

$$\sum_{k=1}^{18} 15k - 10$$

Answer: _____