

I. Find the sum of the first n terms for each series. SHOW WORK!!

1.) first 3 terms for $a_n = 2n - 6$

2.) first 5 terms for $a_n = 4 - 5n$

3.) first 4 terms for $a_n = \frac{1}{2}n + 3$

4.) first 6 terms for $a_n = 7 + \frac{1}{4}n$

II. Find S_n for each arithmetic series described. SHOW WORK!!

5.) $a_1 = 16$, $a_n = 98$, $n = 13$

6.) $a_1 = 5$, $n = 11$, $d = 4$

7.) $a_n = 33$, $d = 2$, $a_1 = 5$

8.) $d = -8$, $n = 16$, $a_n = -108$

9.) $8 + 15 + 22 + \dots + 155$

10.) first 17 positive odd integers

11.) $a_1 = 14$, $n = 21$, $d = -6$

12.) $d = \frac{2}{5}$, $n = 10$, $a_n = \frac{19}{5}$

13.) multiples of 3 between 3 and 78 inclusive

14.) $a_n = 148$, $a_1 = -20$, $n = 25$

15.) $a_1 = -121$, $d = 3$, $a_n = 5$

16.) $89 + 86 + 83 + \dots + 20$

IV. Find the first 3 terms of each arithmetic series. SHOW WORK!!

17.) $a_1 = 14$, $a_n = -85$, $S_n = -1207$

18.) $n = 16$, $a_n = 15$, $S_n = -120$

V. Find the sum of each given arithmetic series using Sigma Notation of BOTH METHODS. Make sure your answer is the same for both methods. SHOW WORK ON BOTH METHODS!!

19.) $\sum_{k=1}^5 5 + 3k$

20.) $\sum_{n=4}^{11} 2n - 3$

21.) $\sum_{j=3}^8 5j + 2$

VI. Critical Thinking Problems – Complete each problem with as much detail as possible. If a problem requires an EXPLANATION, please do so IN COMPLETE SENTENCES. SHOW WORK TO VERIFY YOUR ANSWER AND REASONING!!

22.) Does the sum of the series $18 + 22 + 26 + \dots + 62 = 492$?

23.) Determine if each statement is TRUE or FALSE:

a.) Doubling each term in an arithmetic series will double the sum.

b.) Doubling the number of terms in an arithmetic series but keep the first term and the common difference the same, will double the sum.

(HINT: Use the following arithmetic series $5 + 7 + 9 + 11$ to validate your answer)

24.) Determine which ANSWER CHOICE is correct:

The angles of a triangle form an arithmetic sequence. If the smallest angle measures 36° , then what is the measure of the largest angle?

(HINT: Plug in the answer choices to eliminate the wrong answers)

A.) 60°

B.) 72°

C.) 84°

D.) 144°

25.) Write the following using Sigma Notation: $6 + 12 + 18 + \dots + 54$.