



Problem 1 – Sum of Arithmetic Sequences

Goal: Find a formula for the sum of an arithmetic sequence.

Step 1: On page 1.3, examine the given sequence, called **alist**.

Step 2: In Column B, enter the sequence in reverse order.

Step 3: In grey box of Column C, enter the formula $= a + b$.

- What do you notice about the sums in Column C?
- How do you find the sum of Column C without adding all the values individually?
- How does the sum of Column C compare to the sum of Column A?

Step 4: Repeat the steps above for the lists given on page 1.4 and 1.5.

- Conjecture a formula for the sum of an arithmetic sequence:
- Apply the formula to find the sum of the sequences on pages 1.7 to 1.10.

Problem 2 – Sum of Geometric Sequences

Goal: Find a formula for the sum of a geometric sequence

Step 1: On page 2.3, examine Column A to determine the common ratio between the terms.

Step 2: In the grey box of Column B, enter the formula $=a * (\text{Common Ratio})$, where Common Ratio is the number you found in Step 1.

Step 3: Notice the diagonals of the two columns have the same values. There are two values that are different. In cell C1, subtract the two remaining values by typing in a formula. Note: You will only have one formula in the one cell.

Step 4: Determine what number you need to **divide** the value in cell C1 by in order to get the sum of Column A.

- Rewrite each value in Column A using the common ratio?
- How can you find the value you calculated in cell C1 using the rewritten values of Column A?
- Conjecture a formula for the sum of a geometric sequence:

Step 5: Repeat the steps above for lists on pages 2.4 and 2.5. Test your conjecture. You may need to adjust your conjectured formula. Check with your teacher before answering the questions that follow.

- Apply the formula to find the sum of the sequences on pages 2.7 to 2.9.