

Algebra 2 Worksheet #6 Unit 9 page 1 _____

Solve each of the following problems. Show your work neatly organized.

1. Find the sum of the first 100 terms of an arithmetic sequence in which $a_1 = 5$ and $d = 3$.
2. Find the sum of the first 50 terms of the sequence defined by $a_n = 10n - 5$.
3. Find the sum of the first 75 terms of the sequence defined by $a_{n+1} = a_n + 6$ where $a_1 = 20$.
4. Find the sum of the first 40 terms of the sequence 2, 2.2, 2.4, 2.6, ...
5. Show that the sum of the first n terms of the sequence 1, 3, 5, 7, ... is equal to n^2 .
6. Evaluate the series $1 + 4 + 7 + 10 + \dots + 100$.

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Solve each of the following problems. Show your work neatly organized.

7. Evaluate: $\sum_{i=1}^{50} (2i + 3)$

8. Evaluate: $\sum_{i=1}^{40} (4i - 1)$

9. An object accelerates in such a way that it travels 10 feet during the first second, 15 feet during the next second, and 20 feet during the third second. If this pattern continues, then how far will the object have moved during the first ten seconds?

10. A job has a starting salary of \$32,000 with a guaranteed increase of \$400 per year. Find the total salary for the first ten years.