1. Find the sum of the first 50 terms of an arithmetic sequence in which $a_1 = 5$ and $d = 3$.

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2. Find the sum of the first 10 terms of an geometric sequence in which $a_1 = 5$ and $r = 3$.

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3. Find the sum of the first 50 terms of the sequence defined by $a_n = 4n - 1$.

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4. Find the sum of the first 10 terms of the sequence defined by $a_n = 3(2)^{(n-1)}$.

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5. Find the sum of the first 10 terms of the sequence defined by $a_{n+1} = -2a_n$ where $a_1 = -1$.

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6. Find the sum of the first 30 terms of the sequence defined by $a_{n+1} = a_n + 6$ where $a_1 = 4$.

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7. Find the sum of the first 30 terms of the sequence 4, 8, 12, 16, ...

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8. Find the sum of the first 10 terms of the sequence 4, 8, 16, 32, ...

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9. Evaluate the series $5 + 8 + 11 + 14 + ... + 701$.

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10. Evaluate the series $5 + 10 + 20 + 40 + ... + 2560$.

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11. Evaluate the series $4 + 1 + 1/4 + 1/16 + ...$

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Evaluate each of the following.

12. $\displaystyle\sum_{k=1}^{5} k^2$

  _____

13. $\displaystyle\sum_{j=1}^{40} (-1)^j \left(\frac{j}{40}\right)$

  _____

14. $\displaystyle\sum_{i=1}^{12} (3)(2)^{(i-1)}$

  _____

15. $\displaystyle\sum_{i=1}^{\infty} (2)\left(\frac{2}{3}\right)^{(i-1)}$

  _____

16. $\displaystyle\sum_{i=1}^{60} (6i+1)$

  _____

Solve each of the following.

17. A job has a starting salary of $14,000 with a guaranteed increase of $300 per year. Find the total salary for the first sixteen years.

18. A job has a starting salary of $14,000 with a guaranteed increase of 3% per year. Find the total salary for the first sixteen years.

19. A ball is dropped from a height of 200 inches onto a concrete floor. On each bounce the ball rebounds to 80% of its previous height. What is the total vertical distance that the ball has traveled when its hits the floor for the sixteenth time?

20. A ball is dropped from a height of 100 inches onto a concrete floor. On each bounce the ball rebounds to 40% of its previous height. What is the total vertical distance that the ball will travel before it comes to rest?