Arithmetic Sequences and Series

1. A man takes a job at $24,000 per year. He receives annual increases in pay of $950. What is his salary during his seventh year on the job?

2. A Christmas Savings Club, which helps members to save money for Christmas shopping, requires each member to deposit $25 the first week and to increase the deposit by $8 weekly for nine weeks. How much is the final deposit?

3. A college student typing a research paper finds that she can type 5 words per minute each 1/2 hour she types. If she starts at 37 words a minute at 7:30 p.m., how fast is she typing at 9:00 p.m.?

4. A ball which rolls off a penthouse terrace falls 16 feet the first second, 48 feet the second , and 80 on the third. If it continues to fall in this manner, how far does it fall the seventh second.?

5. The third term of an A.P. is 14 and the ninth term is -1. Find the first three terms.

6. The seven weights in a set for an analytic balance are in an arithmetic progression. If the largest is 25 grams and the smallest is 1 gram, what are the other weights?

7. A young man's salary increased for 5 years in an arithmetic sequence. If his salary the first year was$30,000 and his salary in the fifth year was $45,000, what was his salary during each of the other years?

8. The arithmetic mean of two numbers is 9. If the sum of the squares of the numbers is 50 more than the square of 20, find the numbers.

9. How much did an aeronautical engineer earn is ten years if her starting salary was $40,000 and she received annual increases of $1800.

10. In the front row of the physics lecture hall, there are 25 seats in the first row and 2 seats more in each following row. How many seats are there in the front 10 rows?

11. John repays the $675 he owes his brother by making monthly payments. If his first payment is $10 and every other payment is $5 more than the preceding month, how long doe sit take him to pay off the debt?

12. Find the missing terms:

    a) $a = 3, l = 17, S_n = 100$ b) $n = 12, l = 1, S_n = -24$ c) $d = 5, n = 11, S_n = 275$

13. Write using summation notation:

    a) $2 + 5 + 8 + \ldots$ to 12 terms   b) $12 + 9 + 6 + 3 + 0 + (-3) + (-6) + (-9) + (-12)$