Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_

**518 Practice with Arithmetic Mean and Applications of Sequence and Series**

**I. Arithmetic Mean**

1) 4 arithmetic means between 24 and -1

2) -6, \_\_\_\_ , \_\_\_\_ , \_\_\_\_ , \_\_\_\_ , 49

3) -28, \_\_\_\_ , \_\_\_\_ , \_\_\_\_ , \_\_\_\_ , 7

4) 4 arithmetic means between 84 and 39

5) -12, \_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_ - 66

6) 5 arithmetic means between 182 and 104

7) Given that  and , find 

**II. Series**

**Find the sum of each arithmetic series**

8) The first 100 even natural numbers

9) The first 200 odd natural numbers

10) The first 300 even natural numbers

11) -18 + (-15) + (-12) + . . . + 66

12) -24 + (-18) + (-12) + . . . + 72

13) 

14) 

**III. Sequence & Series Applications**

15) Jose averaged 123 total pins per game in his bowling league this season. He is taking bowling lessons and hopes to bring his average up by 8 pins each new season.

a) Write an equation to represent the  term of the sequence.

b) If the pattern continues, during what season will Jose average 187 per game?

16) Sareeta took an 800 page book on vacation. If she was already on page 112 and is going to be on vacation for 8 days, what is the minimum number of pages she needs to read per day to finish the book by the end of her vacation?

17) Mario began an exercise program to get back in shape. He plans to row 5 minutes on rowing machine the 1st day and increase his rowing time by one minute and thirty seconds each day.

a) How long will he row on the 18th day?

b) On what day will Mario firest row an hour or more?

18) The prizes in a weekly radio contest began at $150 (first week) and increased by $50 for each week that the contest lasted. If the contest lasted for eleven weeks, how much was awarded **in total**?

19) There are 28 seats in the front row of a theater. Each successive row contains two more seats than the previous row. If tehre are 24 rows, how many seats are in last row of the theater?

20) A radio station is offering a total of $8500 if prizes over ten hours. Each hour, the prize will increase by $100. Find the amounts of the first and laze prize.

21) A certain company pays its employees according to their performance. Belinda is paid a flat rate of $200 per week plus $24 for every unit she completes. If she earned $512 in one week, how many units did she complete?

22) Terry currently earned $28, 000 per year. If Terry expects a $4000 increase in salary every year, after how many years will he have a salary of $100,000 per year?

23) While training for cross country, Silvia plans to run 3 miles per day for the first week, and then increase the distance by a half mile each of the following weeks

1. Write an equation to represent the nth term of each sequence.
2. If the pattern continues, during which week will she be running 10 miles per day?

24) Daniela borrowed some money from her parents. She agreed to pay $50 at the end of the first month and $25 more each addition month for 12 months. How much does she pay in total after the 12 months?

25) When an object is in free fall and air resistance is ignored, it falls 16 feet in the first second, an additional 48 feet during the next second, and 80 feet during the third second. How **many total feet** will the object fall in 10 seconds?