CHAPTER 11

Mid-Chapter Quiz

Lessons 11-1 through 11-5

Find the indicated term of each arithmetic sequence. (Lesson 11-1)

1. $a_1 = 7, d = 3, n = 14$
2. $a_1 = 2, d = \frac{1}{2}, n = 8$

For Exercises 3 and 4, refer to the following information. (Lesson 11-1)

READING Amber makes a New Year's resolution to read 50 books by the end of the year.

3. By the end of February, Amber has read 9 books. If she reads 3 books each month for the rest of the year, will she meet her goal? Explain.
4. If Amber has read 10 books by the end of April, how many will she have to read on average each month in order to meet her goal?

5. **MULTIPLE CHOICE** The figures below show a pattern of filled squares and white squares that can be described by a relationship between 2 variables.

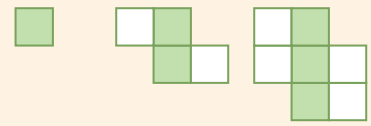

Figure 1 Figure 2 Figure 3

Which rule relates f, the number of filled squares, to w, the number of white squares? (Lesson 11-1)

A $w = f - 1$ C $f = \frac{1}{2}w - 1$

B $w = 2f - 2$ D $f = w - 1$

Find the sum of each arithmetic series described. (Lesson 11-2)

6. $a_1 = 5, a_n = 29, n = 11$
7. $6 + 12 + 18 + \cdots + 96$

8. **BANKING** Veronica has a savings account with $1500 dollars in it. At the end of each month, the balance in her account has increased by 0.25%. How much money will Veronica have in her savings account at the end of one year? (Lesson 11-3)

9. **GAMES** In order to help members of a group get to know each other, sometimes the group plays a game. The first person states his or her name and an interesting fact about himself or herself. The next person must repeat the first person's name and fact and then say his or her own. Each person must repeat the information for all those who preceded him or her. If there are 20 people in a group, what is the total number of times the names and facts will be stated? (Lesson 11-2)

10. Find a_7 for the geometric sequence 729, −243, 81, … . (Lesson 11-3)

Find the sum of each geometric series, if it exists. (Lessons 11-4 and 11-5)

11. $a_1 = 5, r = 3, n = 12$
12. $5 + 1 + \frac{1}{5} + \cdots$
13. $\sum_{n=1}^{6} 2(-3)^{n-1}$
14. $\sum_{n=1}^{\infty} 8\left(\frac{2}{3}\right)^{n-1}$
15. $\sum_{n=1}^{\infty} -13\left(\frac{1}{3}\right)^{n-1}$
16. $\sum_{n=1}^{\infty} \frac{1}{100}\left(\frac{10}{9}\right)^{n-1}$

Write each repeating decimal as a fraction. (Lesson 11-5)

17. $0.\overline{17}$
18. $0.\overline{256}$
19. $1.\overline{27}$
20. $3.1\overline{5}$

GEOMETRY **For Exercises 21 and 22, refer to square $ABCD$, which has a perimeter of 120 inches.** (Lesson 11-5)

If the midpoints of the sides are connected, a smaller square results. Suppose the process of connecting midpoints of sides and drawing new squares is continued indefinitely.

21. Write an infinite geometric series to represent the sum of the perimeters of all of the squares.
22. Find the sum of the perimeters of all of the squares.