

Name _____

13-2B Lesson Master**Questions on SPUR Objectives**

See Student Edition pages 934–937 for objectives.

SKILLS Objective B

In 1–6, a geometric series is given. Find a. the first term, b. the common ratio, c. the number of terms, and d. the sum using the Finite Geometric Series Sum Theorem.

1. $81 + 27 + 9 + 3 + 1 + \frac{1}{3} + \frac{1}{9}$

a. _____ b. _____ c. _____ d. _____

2. $1 + 2 + 4 + 8 + \dots + 512$

a. _____ b. _____ c. _____ d. _____

3. $6 + 24 + 96 + \dots + 6 \cdot 4^{11}$

a. _____ b. _____ c. _____ d. _____

4. $0.005 + 0.01 + 0.02 + 0.04 + \dots + 0.005 \cdot 2^8$

a. _____ b. _____ c. _____ d. _____

5. $1 - 1.5 + 2.25 - \dots + 1.5^{10}$

a. _____ b. _____ c. _____ d. _____

6. $1 + m + m^2 + m^3 + \dots + m^{17}$

a. _____ b. _____ c. _____ d. _____

7. Find the sum of the first ten terms of the sequence

$$\begin{cases} g_1 = 32 \\ g_n = 0.75g_{n-1}, \text{ for integers } n \geq 2 \end{cases} \text{ . } \underline{\hspace{2cm}}$$

8. Find the sum of the first nine terms of the sequence

$$\begin{cases} g_1 = -10 \\ g_n = -g_{n-1}, \text{ for integers } n \geq 2 \end{cases} \text{ . } \underline{\hspace{2cm}}$$

SKILLS Objective C

In 9 and 10, a. write the geometric series in summation notation and b. find the sum.

9. $3 + 3a + 3a^2 + \dots + 3a^{12}$

a. _____ b. _____

10. $1 - 3 + 9 - 27 + 81 - 243$

a. _____ b. _____

In 11 and 12, a. determine whether the summation is an arithmetic or a geometric series, and b. find the value of the series.

11. $\sum_{i=1}^{12} 2^i$

a. _____ b. _____

12. $\sum_{i=1}^{12} (i + 2)$

a. _____ b. _____

Name _____

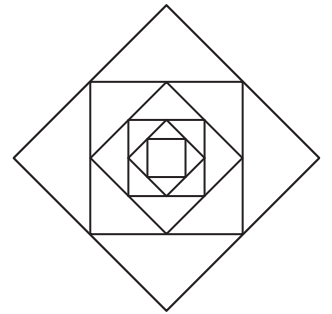
13-2B

page 2

USES Objective G

13. On each January 3rd for 19 years, Mrs. Redstar deposited \$500 in a college savings account for her son that earned an annual yield of 5.5%.
- Write a geometric series that represents the value of the fund on January 3rd of the 20th year after the annual deposit was made. _____
 - Evaluate the series in Part a. _____
 - If the account had earned 5% rather than 5.5%, how much less would there have been in the account on January 3rd of the 20th year? _____
14. The output of a certain industrial machine decreased 2.5% each year. In 1996, the machine produced 6,300,000 paper cups. Find the total number of paper cups produced from 1996 through 2005. _____

In 15–17, consider a glass designer’s plan for a stained-glass window at the right. The designer will use the method of leading, where strips of pure lead hold the materials together, for each segment shown in the diagram. The length of the side of the largest square is 100 cm.



15. What is the perimeter of
- the largest square? _____
 - the second largest square? _____
 - the third largest square? _____
16. Write a geometric series that represents the total length of leading needed for the window. _____
17. Find the total length of leading needed. _____
18. A ball is dropped from a height of 6 feet and bounces up to 80% of its previous height on each bounce. When it hits the ground for the 11th time, how far has it traveled in the vertical direction? _____
19. On the third of January for eight consecutive years, Ben deposited \$2000 in a retirement fund which earns an annual yield of 3.5%.
- Write a geometric series that represents the value of this investment on January 3rd of the eighth year. _____
 - Evaluate the series in Part a. _____