8-4 **Lesson Master**

Questions on SPUR Objectives
See Student Edition pages 555–557 for objectives.

(**SKILLS**) Objective C

In 1–6, evaluate the arithmetic series.

1. $\sum_{n=1}^{6} (3n - 5)$ _____

2. $\sum_{i=1}^{5} (2i + 3)$ _____

3. $\sum_{k=1}^{7} (-5 - \frac{1}{4}k)$ _____

4. the sum of the first fifty positive integers _____

5. $\sum_{n=1}^{500} 23n$ _____

6. $\sum_{i=1}^{200} (17 - 2i)$ _____

7. The sum of the smallest k positive multiples of 5 is 275. Find k. _____

(**USES**) Objective G

8. To build up strength, Arnold started an exercise program in which he did 10 repetitions of bicep curls with each arm three times each week. He began lifting 10 lb weights, so the first week he lifted a total of $10 \cdot 2 \cdot 3 \cdot 10 = 600$ lb. He added one additional lb to the weights each week until he reached a total of 30 lb. What is the total amount of weight Arnold lifted during this 21-week period?

_____

9. The roof of a shed is supported by 15 evenly spaced joists, as shown at the right. One side of the roof has a length of 9 ft and makes a 36° angle with the horizontal.
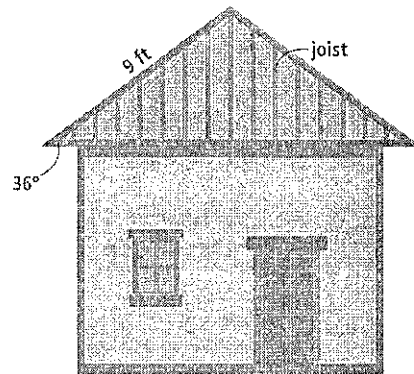
   a. Use Σ-notation to write the series representing the total length of joists for one side of the roof for one end of the shed.

   _____

   b. Find the total length of the joists used for both ends of the shed.

   _____

8-5 **Lesson Master**

Questions on SPUR Objectives
See Student Edition pages 555–557 for objectives.

(**SKILLS**) Objective C

In 1–6, evaluate.

1. $\sum_{n=1}^{6}\left(\frac{1}{3}\right)^{n-1}$ _____

2. the sum of the first five terms of the sequence g where
$\begin{cases} g_1 = 70 \\ g_n = -4g_{n-1}, \text{ for all integers } n > 1 \end{cases}$ _____

3. $\sum_{i=1}^{11} 4\left(-\frac{3}{5}\right)^{i-1}$ _____

4. the geometric series $18 + 6 + 2 + \cdots + \frac{2}{81}$ _____

5. $\sum_{n=1}^{10} (x^5)^{n-1}$ _____

6. the sum of the first fifteen terms of the geometric
sequence with first term -4 and constant ratio $\frac{1}{2}$ _____

7. Find $\sum_{n=30}^{100}\left(\frac{1}{2}\right)^{n-1}$. _____

(**USES**) Objective H

8. On her birthday every year, starting at the age of 22 until retirement at
the age of 67, Beth plans to deposit $1800 into an Individual Retirement
Account (IRA). Suppose the IRA will earn 3.8% annual interest.

   a. Using Σ-notation, write the series representing
   the amount Beth will have in the account
   when she retires. _____

   b. Evaluate the series in Part a. _____

   c. How much of the amount in Part b is interest? _____

9. A ball bounces two thirds of the height from which it falls.
What is the total distance traversed by a ball dropped
15 feet above the ground when it hits the ground
for the ninth time? _____

USE FORMULA