

Parent Guide for Student Success

For use with Chapter 11

Chapter Overview One way that you can help your student succeed in Chapter 11 is by discussing the lesson goals in the chart below. When a lesson is completed, ask your student to interpret the lesson goals for you and to explain how the mathematics of the lesson relates to one of the key applications listed in the chart.

<i>Lesson Title</i>	<i>Lesson Goals</i>	<i>Key Applications</i>
11.1: An Introduction to Sequences and Series	Use and write sequences. Use summation notation to write series and find sums of series.	<ul style="list-style-type: none"> • Retail Displays • Carpentry • Tower of Hanoi
11.2: Arithmetic Sequences and Series	Write rules for arithmetic sequences and find sums of arithmetic series. Use arithmetic sequences and series in real-life problems.	<ul style="list-style-type: none"> • Seating Capacity • Honeycombs • Quilting
11.3: Geometric Sequences and Series	Write rules for geometric sequences and find sums of geometric series. Use geometric sequences and series to model real-life quantities.	<ul style="list-style-type: none"> • Cellular Telephones • Tennis • Computer Science
11.4: Infinite Geometric Series	Find sums of infinite geometric series. Use infinite geometric series as models of real-life situations.	<ul style="list-style-type: none"> • Ball Bounce • Windows • Tourism
11.5: Recursive Rules for Sequences	Evaluate and write recursive rules for sequences. Use recursive rules to solve real-life problems.	<ul style="list-style-type: none"> • Fish Populations • Fractals • Dosage

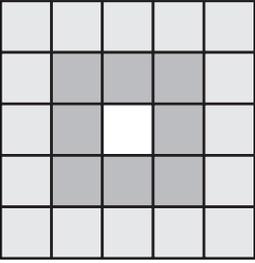
Study Strategy

Learn by Teaching is the study strategy featured in Chapter 11 (see page 650). Have your student explain to you or to another family member or neighbor how to do an important skill from this chapter. Ask questions that will encourage your student to explain his or her steps clearly in words and to provide supporting examples.

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Key Ideas Your student can demonstrate understanding of key concepts by working through the following exercises with you.

Lesson	Exercise
11.1	A triangle has no diagonals, a square has 2, a pentagon (5-gon) has 5, and a hexagon (6-gon) has 9. How many diagonals does an octagon (8-gon) have? Write a formula for the number of diagonals in an n -gon.
11.2	An around-the-world quilt is made out of squares that are all the same size. The quilt starts with one square in the middle. Each successive round after the first is a different color, as shown in the diagram. Write a rule for the number of squares along a side in a quilt with n rounds. Use your rule to find the total number of squares in a quilt with n rounds. <div style="text-align: right;">  </div>
11.3	Suppose you save \$50 this year, but promise to increase the amount you save by 50% each year. How much would you have saved after 10 years?
11.4	Find the common ratio of the infinite geometric sequence with sum $S = 10$ and first term $a_1 = 2$.
11.5	You buy a used car for \$5000, with \$1000 down and payments of \$250 a month. Each month 1% interest is added to the balance before your payment is subtracted. Write a recursive rule for the balance a_n that you owe after making $n - 1$ monthly payments. How much do you owe after making 6 monthly payments?

Home Involvement Activity

Directions: Find a pattern in your home and analyze it using sequences and series. For example, look for a pattern in a quilt, bathroom tiles, decorative art, the branching of a tree, or stacked objects. Write a formula for the n th term of the sequence and find the sum of the related series.

Answers

11.1: $20; \frac{n(n-3)}{2}$ 11.2: In quilt with n rounds, there are $2n - 1$ squares along a side so there is a total of $(2n - 1)^2$ squares. 11.3: \$5666.50 11.4: $\frac{5}{4}$ 11.5: $a_1 = 4000, a_n = (1.01)^{n-1}(4000 - 250); \2708.08