NAME _____ DATE _____

Parent Guide for Student Success

For use with Chapter 3

Chapter Overview **One way that you can help your student succeed in Chapter 3 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.**

Lesson Title	*Lesson Goals*	*Key Applications*
3.1: Solving Linear Systems by Graphing	Graph and solve systems of linear equations in two variables. Use linear systems to solve real-life problems.	• Vacation Costs • Book Club • Floppy Disk Storage
3.2: Solving Linear Systems Algebraically	Use algebraic methods to solve linear systems. Use linear systems to model real-life situations.	• Catering • Cross-Training • Renting an Apartment
3.3: Graphing and Solving Systems of Linear Inequalities	Graph a system of linear inequalities to find the solutions of the system. Use systems of linear inequalities to solve real-life problems.	• Heart Rate • Weightlifting Records • Biology
3.4: Linear Programming	Solve linear programming problems and use linear programming to solve real-life problems.	• Bicycle Manufacturing • Juice Blends • Nutrition
3.5: Graphing Linear Equations in Three Variables	Graph linear equations in three variables and evaluate linear functions of two variables. Use functions of two variables to model real-life situations.	• Landscaping • Transportation • Radio Commercials
3.6: Solving Systems of Linear Equations in Three Variables	Solve systems of linear equations in three variables and use linear systems in three variables to model real-life situations.	• Sports • Chinese Restaurant • Voting

Test-Taking Strategy

Plan Ahead. *Before you jump in to solve a problem, take the time to* ***read the question carefully*** *and to* ***identify any helpful shortcuts.*** You may wish to look with your student at the test and review exercises in the book.

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

Lesson	Exercise
3.1	On vacation, you need to drive 245 miles across a state in 4 hours. Two roads cross the state, an interstate highway where you can drive at the speed limit of 65 miles per hour and a state highway where you can average 50 miles per hour. You want to see some of the scenery along the state highway. How long should you drive on each highway?
3.2	Which algebraic method is easier to use to solve the system? Use the method you chose to solve it. $y = 4x - 3$ $3x - 2y = -4$
3.3	You are working in a store where you need to make a mixture of cashews and walnuts. The mixture should weigh at least 4 pounds, cost a maximum of \$12, and have more than a pound of cashews. Cashews cost \$3 per pound and walnuts cost \$2 per pound. You prefer to weigh only whole numbers of pounds. Use the graph of a system of inequalities to find three combinations of cashews and walnuts you can use in the mixture.
3.4	Find the minimum and maximum values of the objective function $C = 4x + y$, subject to the given constraints. $x \geq 0$ $\quad x + y \leq 4$ $y > 0$ $\quad x + 3y \leq 6$
3.5	If $z = f(x, y) = 2x - 4y + 7$, find $f(-2, 1)$.
3.6	Use any algebraic method to solve the system. $2x - 3y - z = 7$ $x - 2y = 1$ $2x + 2z = 4$

Home Involvement Activity

Directions: Pick a number. Subtract 3 from your first number to get a second number. Take 3 times the first number plus two times the second number to get a third number. Subtract the third number from 5 times the first number. The result is 6. Try the trick for several first numbers. Then, use equations and substitution to see why the trick works.

Answers

3.1: 3 h on interstate and 1 h on state highway **3.2:** substitution; (2, 5) **3.3:** 2 lb of each, 2 lb of cashews and 3 lb of walnuts, 3 lb of cashews and 1 lb of walnuts **3.4:** minimum is 2 at (0, 2), maximum is 13 at (3, 1) **3.5:** −1 **3.6:** (5, 2, −3) **Activity:** $y = x - 3$ and $z = 3x + 2y$. By substitution, $z = 5x - 6$ and $5x - z = 6$.