Appendix F

Buying a Home

For most people, buying a house is a great investment that can offer security in an uncertain world, but buying a house is also a commitment.

Application Practice

Answer the following questions. Use Equation Editor to write mathematical expressions and equations. First, save this file to your hard drive by selecting **Save As** from the **File** menu. Click the white space below each question to maintain proper formatting.

1. Suppose you are in the market for a new home and are interested in a new housing community under construction in a different city.

   a) The sales representative informs you that there are two floor plans still available, and that there are a total of 56 houses available. Use *x* to represent floor plan #1 and *y* to represent floor plan #2. Write an equation that illustrates the situation.

   b) The sales representative later indicates that there are 3 times as many homes available with the second floor plan than the first. Write an equation that illustrates this situation. Use the same variables you used in part a.

   c) Use the equations from part a and b of this exercise as a system of equations. Use substitution to determine how many of each type of floor plan is available. Describe the steps you used to solve the problem.

   d) What are the intercepts of the equation from part a of this problem? What are the intercepts from part b of this problem? Where would the lines intersect if you solved the system by graphing?

2. As you are leaving the community, you notice another new community just down the street. Because you are in the area, you decide to inquire about it.

   a) The sales representative here tells you they also have two floor plans available, but they only have 38 homes available. Write an equation that illustrates the situation. Use *x* and *y* to denote floor plan #1 and floor plan #2 respectively.

   b) The representative tells you that floor plan #1 sells for $175,000 and floor plan #2 sells for $200,000. She also mentions that all the available houses combined are worth $7,200,000. Write an equation that illustrates this situation. Use the same variables you used in part a.

   c) Use elimination to determine how many houses with each floor plan are available. Explain how you arrived at your answer.

3. You recently started the paperwork to purchase your new home, and you were just notified that you can move into the house in 2 weeks. You decide to hire a moving company, but are unsure which company to choose. You search online and are interested in contacting two companies, Heavy Lifters and Quick Move, to discuss their rates. Heavy Lifting charges an $80 fee plus $35 per hour. Quick Move charges $55 per hour with no additional fees.

a) Which mover provides a better deal for 2 hours of work? How did you arrive at your answer?

b) Which mover provides a better deal for 15 hours of work? How did you arrive at your answer?

c) For what values h (hours) does Quick Move offer the better deal? Express your answer as an inequality. Explain how you reached your answer.