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| * http://textbooks.cpm.org/images/cc3/chap05/cc3_chap05_ls_5.1.2_title.pngEarlier in this course, you worked with proportions such as http://textbooks.cpm.org/images/cc3/chap05/CC3_5.1.2intro.gif. One way to begin solving a proportion is to eliminate the fractions and create an equivalent equation. When you eliminate the fractions, it is easier to solve. * Fraction elimination is not just for proportions, however. It also applies to other equations with fractions. In this lesson, you will learn how to eliminate fractions in equations. Then you will be able to use what you learned about solving equations to complete the problems. * **5-10.** Hannah wants to solve 0.04*x* + 1 = 2.2 . “*I think that I need to use my calculator because of the decimals,”* she told Michael. Suddenly Hannah blurted out, “*No, wait! What was the way we learned to rewrite a proportion equation without fractions? Maybe we can use that idea here to get rid of the decimals.”*   1. What is Hannah talking about? Explain what she means. Then rewrite the equation so that it has no decimals.   2. Now solve the new equation (the one with no decimals). Check your solution.   **5-11.** Rewriting 0.04*x* + 1 = 2.2 in the previous problem gave you a new, equivalent equation that was easier to solve. If needed, review the Math Notes box in this lesson for more information about equivalent equations.  How can each equation below be rewritten so that it is easier to solve? With your team, find an equivalent equation for each equation below. If the original equation has large numbers, make sure the equivalent equation has smaller numbers. If the original equation has fractions or decimals, eliminate the fractions or decimals in the equivalent equation. Solve each new equation and check your answer.   * 1. 2.1*x* + 0.6 = 17.4   2. 100*x* + 250 = −400   3. http://textbooks.cpm.org/images/cc3/chap05/CC3_5-11c.gif   4. http://textbooks.cpm.org/images/cc3/chap05/CC3_5-11d.gif   **5-12.** Examine the equation http://textbooks.cpm.org/images/cc3/chap05/CC3_5-12.gif, and then answer the questions below.   * 1. Multiply each term by 3. What happened? Do any fractions remain?   2. If you had multiplied each term in the original equation by 5 instead of 3, would you have eliminated all of the fractions?   3. Find a number that you can use to multiply by all of the terms that will get rid of all of the fractions. How is this number related to the numbers in the equation?   4. Solve your new equation from part (c) and check your equation.   **5-13.** Use the strategy you developed in problem 5-12 to solve each of the following equations.   * 1. http://textbooks.cpm.org/images/cc3/chap05/CC3_5-13a.gif   2. http://textbooks.cpm.org/images/cc3/chap05/CC3_5-13b.gif   3. http://textbooks.cpm.org/images/cc3/chap05/CC3_5-13c.gif   4. http://textbooks.cpm.org/images/cc3/chap05/CC3_5-13d.gif * **5-14.** Sam can paint an apartment living room in 3 hours, and Pam can paint the same room in 2 hours. The solution to the equation http://textbooks.cpm.org/images/cc3/chap05/CC3_5-14.gifdescribes how long it will take them to paint the living room if they work together. Before solving this problem, make a guess about the answer. Then solve the equation. How did your guess compare? Most people are surprised with the correct solution! * **5-15.** Review your solution to part (b) of problem 5-13. You probably multiplied each fraction by the lowest (least) common denominator (LCD), which, in this case, is 10. But what would you do if you could not determine the LCD? You will explore this idea in parts (a) through (e) below.   1. Multiply the three denominators: 5 · 2 · 10 .   2. Multiply both sides of the equation http://textbooks.cpm.org/images/cc3/chap05/CC3_5-15b.gifby the product you got in part (a). This gives you an equivalent equation. Have your partner multiply both sides of the equation by 10 and find a different equivalent equation.   3. Now, solve your equation for *y* and check your answer. While you solve your equation, your partner will be solving his or her equation.   4. Compare your result with your partner’s.   5. Why do both your method and your partner’s method work? That is, why do both using the product of the denominators and using the LCD of 10 both successfully eliminate fractions from equations? * **5-16.** Fill in each of the lines labeled (a) through (e) to explain how the equation to its left was obtained from the equation above it. * http://textbooks.cpm.org/images/cc3/chap05/CC3_5-16.png |