

Money Investigation 2

Student Classroom Materials

1. Look for the mathematical connections between the parts of this problem.
 - a. Suppose each person in your group has 3 quarters and 5 dimes. In addition, your teacher puts 6 nickels on your table. How much money does your group have, including the money put on the table?

 - b. Suppose your teacher gives each person in your group 3 nickels and x dimes. In addition, your teacher gives a total of 30 cents to another group. Express in at least two ways the total value of the money given away by the teacher.

 - c. Suppose you had 9 dollars. Make up a problem in which the expression
$$900 - 4(10x + 5y)$$
gives the amount of money, in cents, you have remaining. What is the answer to your problem when $x = 2$ and $y = 6$? What does your answer mean in terms of money?

 - d. Suppose that $900 - 4(10x + 5y) = 200$. What does the 200 mean in the context of the problem you made up for part c? Use the context of that problem to help you figure out what x is if $y = 7$. Explain how you do it.

 - e. Write a sentence or two describing the mathematical connections you saw in parts a, b, c and d of this problem. Don't try to imagine what your instructor wants, but write what you actually saw.

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- 2. a.** Play this puzzle with a partner. Both you and your partner should secretly pick numbers between 1 and 100, without telling each other what number you choose. Add 5 to your number then double the total. Your partner should do the same to her/his number. Each of you then give your final result to your partner. The puzzle is for each of you to determine what number your partner began with. This is not a race. Each of you should work until you each think you know what the other's secret number is.
- b.** Describe the process you used to determine your partner's number in the puzzle in part a. Your description should be a good set of step-by-step instructions that someone else could use to solve this puzzle.
- c.** Suppose you were to try to solve this puzzle many times using many different numbers. Write an equation for T , the final resulting number your partner gives you, in terms of n , your partner's secret number. Solve your equation for n by following the instructions you wrote in part b. How can you determine if your work is right?

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Student Materials: Homework

1.
 - a. Write a symbolic expression that says "you add 3 to a number x and then multiply the result by 5."

 - b. If $x = 7$, what is the result?

2.
 - a. Write another expression that says "you multiply a number x by 5 and then you add 3 to the result."

 - b. If $x = 7$, what is the result?

3. Explain the difference between problem 1 and problem 2. Why do they have different answers in part b?

4.
 - a. Solve this equation for x
$$500 - 3(x + 20) = 20$$

 - b. Write a problem about money that is represented by the equation in part a. What does your solution for part a mean in the context of the problem you wrote?