

# The Use of Mathematics in a Conversation about Poverty

Capital Community College

Common Mathematics Assignment 2002-2003

## COMMON MATH ASSIGNMENT INSTRUCTIONS

The article that you have read for this project (“Poverty’s Web Widens” by Mike Swift, *Hartford Courant*, 22 May, 2002, pp A1, A12, A13) refers to a table showing data on the 169 towns in Connecticut. The table that you received with the article contains the data from the *Courant* plus one additional column. This data table provides the information you need to answer the questions in this packet. As you work on the questions, you may want to use scrap paper and a calculator, but when you are satisfied with your answers, please enter your answers into the spaces provided after each question. In most cases, you will see a space marked *solution*. Please use that space to show your work. **Answers are not enough; show all calculations that lead to your answers, including printouts of any solutions that you generate with a computer.** While the answers and solutions that you submit must represent your own work, you should feel free to discuss the article and the questions with others and to seek assistance from the Math Center (room 412) or the Learning Center (room 409).

The purpose of this assignment is to give you an opportunity to work with a few mathematical concepts and skills in order to develop a deeper understanding of a real-world situation. It is also to help the college understand how our students use their math skills. Since Capital students have a wide range of mathematical backgrounds, we expect that some students will be able to answer all the questions easily and some will not. Don’t worry if you find some questions difficult. Please answer as many as you can, and just do your best on the ones you find difficult. Skip over the questions that puzzle you the most and then try them again later again after consulting with a friend. We don't expect most papers to be perfect; however we expect ones that represent your best effort. Your work will provide clues to help us improve and focus our math instruction.

Your instructor will explain how your work on this project will be counted in your course grade. Meanwhile, an anonymous copy of your packet may be scored by the Student Learning Assessment Team, which is looking at competency in *problem solving and mathematical reasoning*. The specific areas that support that competency are shown in the scoring rubric on the back of the Common Math Assignment Record, and you may be interested in reviewing the rubric before you start the assignment.

Please follow these directions and check off each box as you prepare your packet.

- Do not put your name** on the question pages. Instead, put your Banner number\* in the space provided on the first page of the questions.
- Answer all the questions to the best of your ability, and for each one, circle a number in the column that indicates how difficult each question was for you.
- When you have finished all the questions, copy and staple the pages of your work so that you have two packets of answered questions.
- Write your name at the top of one packet and give it to your teacher to grade for your course.
- Fill out the yellow Common Math Assignment Record form and staple it to the other (anonymous) packet of questions. Give this packet also to your teacher, who will put it in a pool from which the assessment committee will select samples for a special scoring. This special scoring is not related to evaluation of either you or your teacher. It is simply to help us to assess our General Education program.\*

\* Your Banner number will be used temporarily to help us identify your past mathematical experience at this college, and then it will be removed permanently. All information that the assessment committee saves will be totally anonymous.

## COMMON MATH ASSIGNMENT RECORD 2002-2003

Banner number \_\_\_\_\_ Course name \_\_\_\_\_

1) Check any of the following resources that you used in this assignment:

\_\_\_\_\_ Math Center                      \_\_\_\_\_ Learning Center                      \_\_\_\_\_ A calculator

\_\_\_\_\_ Friends or relatives                      \_\_\_\_\_ Teacher                      \_\_\_\_\_ A dictionary

\_\_\_\_\_ Other (please describe): \_\_\_\_\_

2) How many times have you visited the Math Center for help with work *other* than this assignment? \_\_\_\_\_ 0-2                      \_\_\_\_\_ 3-6                      \_\_\_\_\_ 7-10                      \_\_\_\_\_ more than 10

3) What did you like or dislike most about this assignment? \_\_\_\_\_

4) How confident are you that your answers are correct? \_\_\_\_\_

*Please be sure that you have circled a difficulty rating number for each answer.*

**Thank you for helping with our research into ways of improving our programs.**

\* \* \* \* \*

1<sup>st</sup> reader: Circle holistic score for *mathematical reasoning*:    4    3    2    1    0

Then check boxes for analytical results:

Score	A <i>Numbers/ Operations</i>	B <i>Algebra/ Geometry</i>	C <i>Graphing</i>	D <i>Mathematical modeling</i>
4 Superior				
3 Proficient				
2 Essential				
1 In progress				

2<sup>nd</sup> reader: Circle holistic score for *mathematical reasoning*:    4    3    2    1

Score	A <i>Numbers/ Operations</i>	B <i>Algebra/ Geometry</i>	C <i>Graphing</i>	D <i>Mathematical modeling</i>
4 Superior				
3 Proficient				
2 Essential				
1 In progress				

3<sup>rd</sup> reader: Circle holistic score for *mathematical reasoning*:    4    3    2    1

Score	A <i>Numbers/ Operations</i>	B <i>Algebra/ Geometry</i>	C <i>Graphing</i>	D <i>Mathematical modeling</i>
4 Superior				
3 Proficient				
2 Essential				
1 In progress				

## SCORING RUBRIC FOR MATH

	<i>A</i> <i>Numbers/Operations</i>	<i>B</i> <i>Algebra/Geometry</i>	<i>C</i> <i>Graphing</i>	<i>D</i> <i>Mathematical Modeling</i>
<i>4</i> <i>Superior</i>	All numerical answers are reasonable, operations selected correctly, and calculations performed accurately.	Assignment of variables and performance of operations on variables is without error; answers and operations involving geometry are correct.	Processes, results, and interpretations involving representation of data by graphs (histograms, coordinates systems, etc.) are correct.	Use of mathematics to describe and answer questions about a real-world situation is correct and complete.
<i>3</i> <i>Proficient</i>	Most numerical answers are reasonable; for the most part, operations are selected correctly, and calculations performed accurately.	For the most part, assignment of variables and performance of operations on variables are correct; most answers and operations involving geometry are correct.	Most processes, results, and interpretations involving representation of data by graphs (histograms, coordinates systems, etc.) are correct.	For the most part, use of mathematics to describe and answer questions about a real-world situation is correct and reasonably complete.
<i>2</i> <i>Essential</i>	A few unreasonable numerical answers; A few cases where operations are selected incorrectly or calculations performed inaccurately.	A few cases where assignment of variables and performance of operations are incorrect; a few cases where answers or operations involving geometry are incorrect.	A few processes, results, and interpretations involving representation of data by graphs (histograms, coordinates systems, etc.) are incorrect.	A few cases where use of mathematics to describe and answer questions about a real-world situation is incorrect or incomplete.
<i>1</i> <i>In progress</i>	Several unreasonable numerical answers, many cases where operations are selected incorrectly, or calculations performed inaccurately.	Several cases where assignment of variables and performance of operations are incorrect; several examples of incorrect answers or operations involving geometry.	Several processes, results, and interpretations involving representation of data by graphs (histograms, coordinates systems, etc.) are incorrect.	Several cases where use of mathematics to describe and answer questions about a real-world situation is incorrect or incomplete.