DEPARTMENT OF DEVELOPMENTAL MATHEMATICS
REPORT OF PROGRAM ASSESSMENT

GOAL

The Department of Developmental Mathematics has conducted a summative assessment (or, more accurately, summative assessments) of our Developmental Mathematics program. As stated by Catherine Garrison and Michael Ehringhaus in their article entitled "Formative and Summative Assessments in the Classroom" (http://www.nmsa.org/publications/webexclusive/assessment/tabid/1120/default.aspx):

> The key is to think of summative assessment as a means to gauge, at a particular point in time, student learning relative to content standards. Although the information that is gleaned from this type of assessment is important, it can only help in evaluating certain aspects of the learning process. Because they are spread out and occur *after* instruction every few weeks, months, or once a year, summative assessments are tools to help evaluate the effectiveness of programs, school improvement goals, alignment of curriculum, or student placement in specific programs.

After discussion within the Department, with a subcommittee of the Department and with former Vice President Peter Dlugos, it was determined that we would use the Final Exams of Algebra B, MAT 032, a "terminal" course, as our assessment tool, with the concern that that indicator might provide us merely with information about the student status, rather than the program status. See the University of South Florida's "PROGRAM ASSESSMENT HANDBOOK, Guidelines for Planning and Implementing Quality Enhancing Efforts of Program and Student Learning Outcomes" (February 2008 edition) (http://oeas.ucf.edu/doc/acad_assess_handbook.pdf). In particular, page 3 thereof:

> Program assessment should not be an evaluation of individual students, faculty or staff. It is a process used to provide a program with feedback on its performance with the intent of helping improve the program and in particular, improve student learning.

We were further aware that, for a successful assessment, we needed to make sure that we set out assessment goals that are realistically attainable, yet will produce the information we seek. As stated in, among other places, the UCF Handbook, page 4:

> "7. Assessment is **coordinated** by **one person** and reviewed by a committee.
> 8. Assessment involves the **participation and input of all faculty and staff**." [sic]

PLANNING

The Department Subcommittee selected three (3) final exam questions that would be (1) normally graded for the students' final exam purposes, and then (2) would be separately graded by their instructors according to a separate assessment rubric not unlike the HSPA rubric which we would construct for them (and in which they would need to be trained). That rubric would highlight and assess our department course goals as set forth in the appropriate course syllabus.

CONDUCT OF ASSESSMENT

As previously outlined, the Developmental Mathematics Department Assessment conducted in Spring 2011 consisted of an analysis of student performance on three questions embedded in the MAT 032 Final Exam. The three questions selected were intended to address three (or four) diverse, yet comprehensive, Student Learning Objectives. After review of these questions with a committee composed of full-time

Developmental Mathematics faculty, the following three questions which appeared on Form B of the Fall 2010 Final Exam and which have essentially identical counterparts on the Spring 2011 Final Exam were selected.

Student Learning Objective 1: Simplify arithmetic and algebraic expressions, including polynomial expressions, rational expressions, and radical expressions.

is addressed by Question 15

Perform the indicated operation and/or simplify:

15) $4x(x-1)-\left(3x^2+6x-2\right)+\left(-x^2+2\right)$

Student Learning Objective 2: Factor algebraic expressions;
and
Student Learning Objective 3: Solve equations, including linear equations in one variable, systems of linear equations, rational equations, and quadratic equations.

are addressed by Question 8

Solve for *x*:

8) $\dfrac{x}{2x+6}-\dfrac{x+2}{4x+12}=\dfrac{1}{8}$

Student Learning Objective 6: Use linear equations in one variable and systems of linear equations in the solution of verbal problems.

is addressed by Question 21

Write an Algebraic Equation for each problem (include a let statement) and use it to solve the word problem.

21) Martha purchased three skirts and four pairs of shoes for a total cost of $85.00. Laura purchased five skirts and two pairs of shoes for a total cost of $81.00. What are the cost of a single pair of shoes and the cost of a single skirt?

Having selected the questions to be used for the assessment, the Committee then reviewed the Fall 2010 Final Exams and selected a range of (anonymous) student answers to these questions. Those carefully selected answers were used to set up a rubric (with illustrations so provided) with which to score <u>for assessment purposes</u> these three questions, probably on a scale from 0 to 3 (0, 1, 2, 3). Each instructor was still given full rein to score those questions as she/he sees fit for Final Exam purposes. A copy of the Rubric and Scoring Guide is annexed hereto (see pages 5 – 20).

Participating Faculty were selected on a random basis, nonetheless insuring that no faculty member was required to assess in more than one session. Participating Faculty then were issued instructions, a copy of which is attached (see sheet dated May 6, 2011, page 21 hereof).

Assessment standards were established (and entered in TK20) as follows:

GOAL:
The Developmental Math Program will satisfactorily prepare students for college-level material.

Measure 1: 50% of the MAT032 students taking the Spring 2011 MAT032/035 Final Exam in 12 randomly selected class sections will score 2 or higher on question 8. See Rubric and Instructions attached.

Measure 2: 60% of the MAT032 students taking the Spring 2011 MAT032/035 Final Exam in 12 randomly selected class sections will score 2 or higher on question 15. See Rubric and Instructions attached.

Measure 3: 70% of the MAT032 students taking the Spring 2011 MAT032/035 Final Exam in 12 randomly selectyed class sections will score 2 or higher on question 21. See Rubric and Instructions attached.

RESULTS OF ASSESSMENT

Data was collected (as aforesaid by the Participating Faculty) with the following results:

		Question 8				Question 15				Question 21			
		3	2	1	0	3	2	1	0	3	2	1	0
TOTALS		61	36	43	76	110	45	25	39	100	13	19	15
					216				219				147
		28.2%	16.7%	19.9%	35.2%	50.2%	20.5%	11.4%	17.8%	68.0%	8.8%	12.9%	10.2%
	3's and 2's		44.9%				70.8%				76.9%		
	Estimated Target		50%				60%				70%		

ANALYSIS OF ASSESSMENT

The Department of Developmental Mathematics, having met and discussed the aforementioned results, has concluded that the results from question 15 and question 21 appear to be satisfactory. Consequently it is the determination of the Department that, at this point in time, students are satisfactorily prepared upon the completion of MAT032 for college level work in the areas delineated by Student Learning Objectives 1 and 6. This conclusion was reached as a result of the 70.8% "satisfactory" and 76.9% "satisfactory" results on questions 15 and 21.

However, it was the determination of the Department that only 44.9% having scored 3's and 2's on Question 8 was an indication that students completing MAT032 (Algebra B) were perhaps less than adequately prepared for college level work, and that the assessment had revealed a need for the Department to review methodology and practices as they related at least specifically to the Learning Objectives on which Question 8 was focused.

After much determination, a Committee was formed to continue discussion of how the teaching of factoring and solving of rational equations could be improved, but some immediate action was recognized and proposed. The solution of rational equations is the fruit of seeds planted in MAT011 with addition and subtraction of fractions and the determination of the least common denominator. Although there are two or three methods in MAT011 for finding the least common denominator (listing, division by primes, and the prime factorization method), the Department feels that the prime factorization method forms the best foundation for the algebra topic of rational equations, and will steer the MAT011 instruction of the LCD toward that method, beginning immediately. Also, this MAT011 prime factorization method will be reviewed with numerical fractions at the beginning of the Rational Expressions addition and Solution of Equations sections in MAT032 for further reinforcement. Minor modification to the Syllabi may be required, but this can probably be accomplished with informal direction.

TIME FRAME FOR RE-ASSESSMENT

It is anticipated that the MAT011 students must be appropriately taught and we will be able to see the affects of this teaching only when they reach MAT032 where it will be reinforced. An appropriate re-assessment will then be when the MAT011 students in Spring 2012 take the MAT032 Final Exams, the soonest period being Spring 2013

Respectfully submitted,

Asst. Prof. Mark Wiener

RUBRIC and SCORING GUIDE

Generally-stated CRITERIA

3-Point Response

The response shows **complete understanding** of the problem's **essential mathematical concepts**. The student **executes procedures completely** and gives **relevant responses** to **all** parts of the task. The response contains **few minor errors, if any**. The response contains a **clear, effective explanation** detailing how the problem was solved so that the reader does not need to infer how and why decisions were made.

2-Point Response

The response shows **nearly complete understanding** of the problem's **essential mathematical concepts**. The student **executes nearly all procedures** and gives **relevant responses** to **most** parts of the task. The response **may have minor errors**. The explanation detailing how the problem was solved **may not be clear**, causing the reader to make some inferences.

1-Point Response

The response shows **limited understanding** of the problem's **essential mathematical concepts**. The response and procedures may be **incomplete** and/or **may contain major errors**. An **incomplete** explanation of how the problem was solved **may contribute to questions as to how and why decisions were made.**

0-Point Response

The response shows **insufficient understanding** of the problem's **essential mathematical concepts**. The **procedures,** if any, contain **major errors**. There may be **no explanation** of the solution, or **the reader may not be able to understand the explanation. The reader may not be able to understand how and why decisions were made.**

CRITERIA AS SPECIFICALLY APPLIED TO:

Question 8:

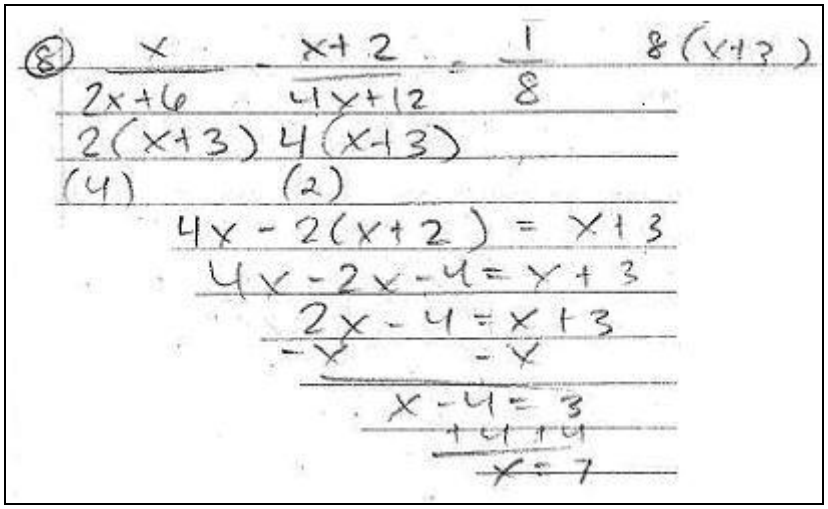
Solve for x

$$\frac{x}{2x+6}-\frac{x+2}{4x+12}=\frac{1}{8}$$

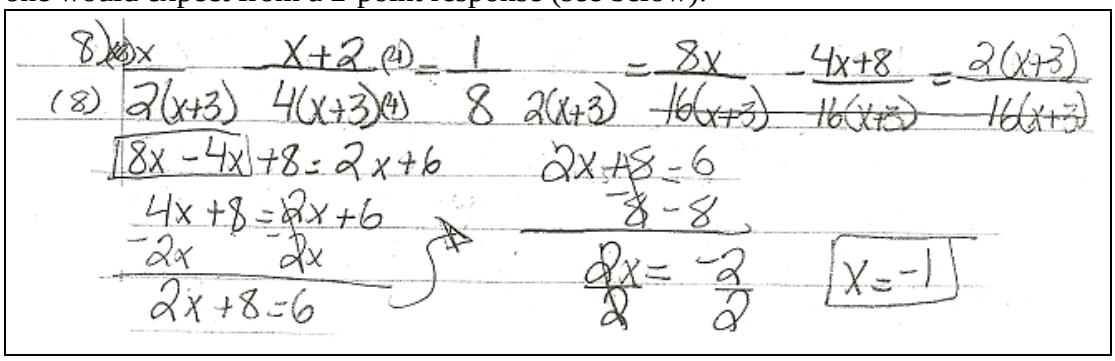
General Criteria
3-Point Response

The response shows **complete understanding** of the problem's **essential mathematical concepts**. The student **executes procedures completely** and gives **relevant responses** to **all** parts of the task. The response contains **few minor errors, if any**. The response contains a **clear, effective explanation** detailing how the problem was solved so that the reader does not need to infer how and why decisions were made.

This first example fits the criteria to a "t", answers the exam question, and is well-deserving of 3 points.



The second example, in the opinion of the Assessment Committee, should also receive 3 points. Although it does <u>not</u> get the correct answer, this is <u>not</u> a fatal flaw. It is clear from the work that the student has "**complete understanding** of the problem's **essential mathematical concepts**." Close examination reveals that the wrong answer occurs because of a distribution error, "a minor error," (-(4*x*+8) became -4*x*+8 instead of -4*x*-8). However, within the definition of a 3-point response, "few minor errors" may be permitted. All other work was impeccable. Further, this example is better than one would expect from a 2-point response (see below).



Question 8:

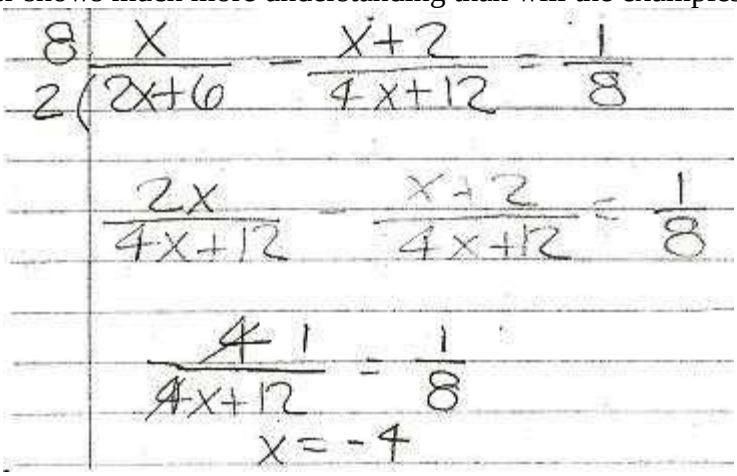
Solve for x

$$\frac{x}{2x+6}-\frac{x+2}{4x+12}=\frac{1}{8}$$

General Criteria
2-Point Response

The response shows **nearly complete understanding** of the problem's **essential mathematical concepts**. The student **executes nearly all procedures** and gives **relevant responses** to **most** parts of the task. The response **may have minor errors**. The explanation detailing how the problem was solved **may not be clear**, causing the reader to make some inferences.

This example is a shade below the previous example. The student is a "**nearly**" – shows nearly complete understanding, executes nearly all procedures. Between the second and the third lines, there is no explanation of where the numerator 4 came from – how $2x - (x - 2)$ became 4 – and this qualifies under the 2-point response language "The explanation detailing how the probem was solved **may not be clear**." However, the student realizes that getting a common denominator and adding the two rational expressions on the left side before cross-multiplying is a valid method to solve. (After the unexplained 4 and error of cancelling the 4's, $x + 12 = 8$ does yield this student's answer of $x = -4$.) In our opinion, this answer shows much more understanding than will the examples of 1-point responses.



Question 8:

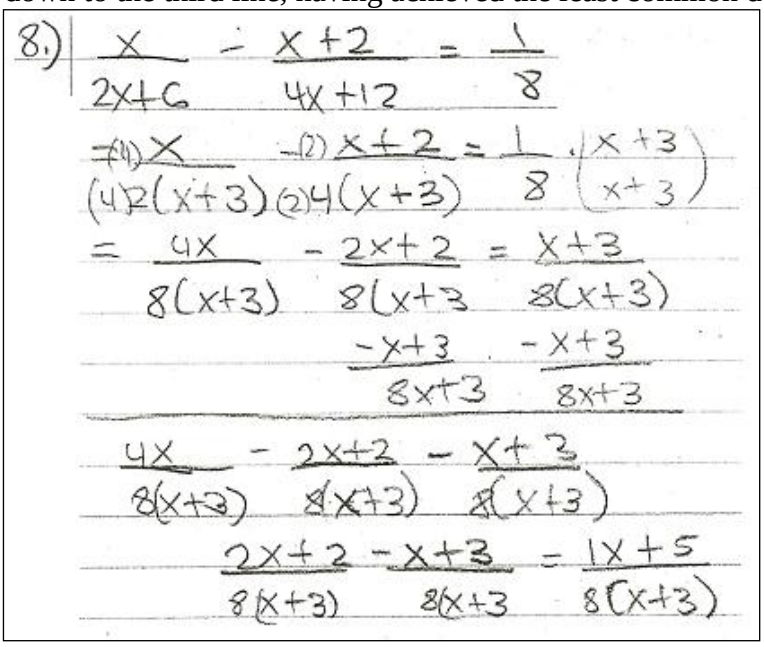
Solve for x

$$\frac{x}{2x+6}-\frac{x+2}{4x+12}=\frac{1}{8}$$

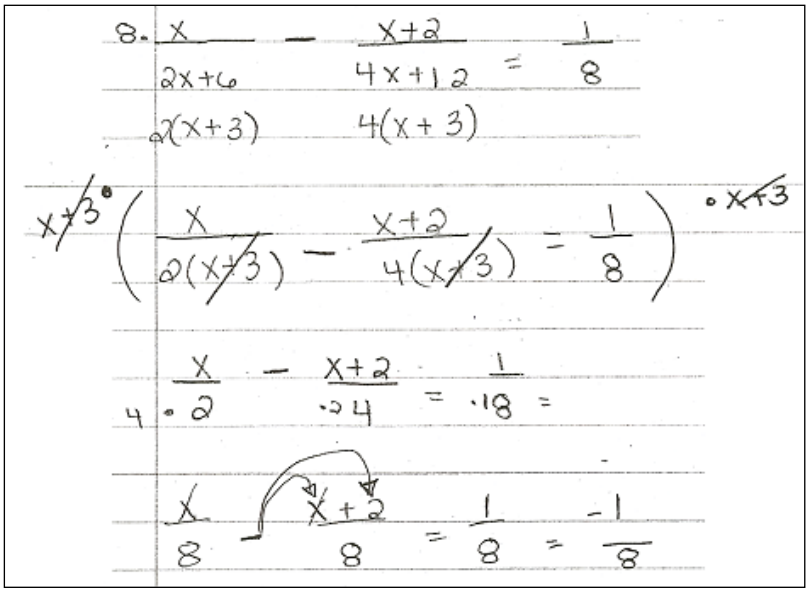
General Criteria
1-Point Response

The response shows **limited understanding** of the problem's **essential mathematical concepts**. The response and procedures may be **incomplete** and/or **may contain major errors**. An **incomplete** explanation of how the problem was solved **may contribute to questions as to how and why decisions were made.**

As they say, "well, it's better than nothing," but it clearly shows **limited understanding**. We're good down to the third line, having achieved the least common denominator, but then what? After gathering all the terms on the left side, our student has no idea what to do with the problem and completely forgets that (1) we have an equation (which is now equal to 0), and (2) that we have to solve the equation for x. Certainly "The response and procedures may be **incomplete** and/or **may contain major errors**."



This next example of a 1-pointer also gets off to a good start. The student multiplies each term first by the common factor (x + 3), and then the first two terms by 4 and 2, respectively, to get the common denominator 8. However, he/she fails to pay attention to the numerator during these adventures, showing the **limited understanding** that labels this as a 1-point response.



Question 8:

Solve for x

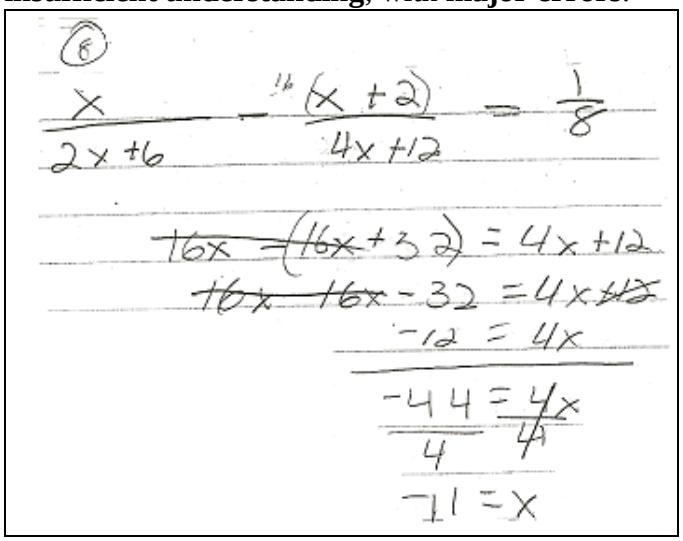
$$\frac{x}{2x+6}-\frac{x+2}{4x+12}=\frac{1}{8}$$

General Criteria
0-Point Response

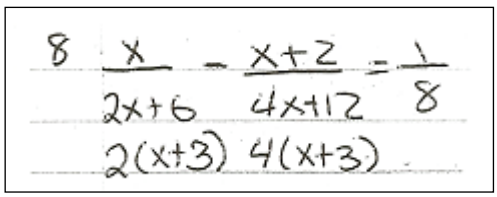
The response shows **insufficient understanding** of the problem's **essential mathematical concepts**. The **procedures,** if any, contain **major errors**. There may be **no explanation** of the solution, or **the reader may not be able to understand the explanation. The reader may not be able to understand how and why decisions were made.**

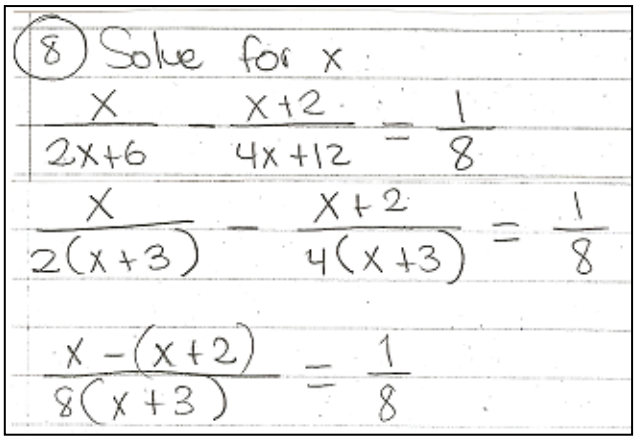
The following three (3) are examples of what the committee has deemed to be worthy of 0 points.

In the first case, the student didn't get the correct least common multiple, but realized that each term had to be multiplied by something, and they multiplied by something vaguely resembling the LCM. However, the student multiplied some terms by one thing and other terms by other things, showing **insufficient understanding**, with **major errors**.



In the second case, they found the right LCM, 8(x+3), but then just dropped it into the left-side denominator with **insufficient understanding** of what to do with it – and then just stopped!





Finally, in the third example, just this side of total collapse – clearly no value even if they did manage to factor the denominators.

Question 15:

Perform the indicated operation and/or simplify:

$4x(x-1)-(3x^2+6x-2)+(-x^2+2)$

or

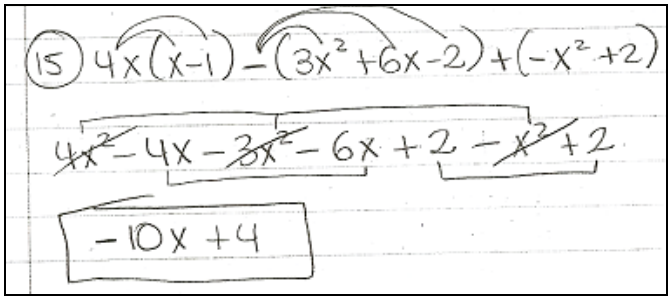
minor variations thereof

General Criteria

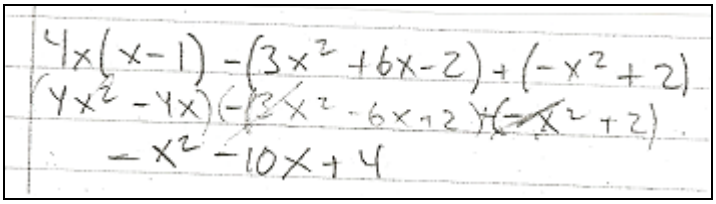
3-Point Response

The response shows **complete understanding** of the problem's **essential mathematical concepts**. The student **executes procedures completely** and gives **relevant responses** to **all** parts of the task. The response contains **few minor errors, if any**. The response contains a **clear, effective explanation** detailing how the problem was solved so that the reader does not need to infer how and why decisions were made.

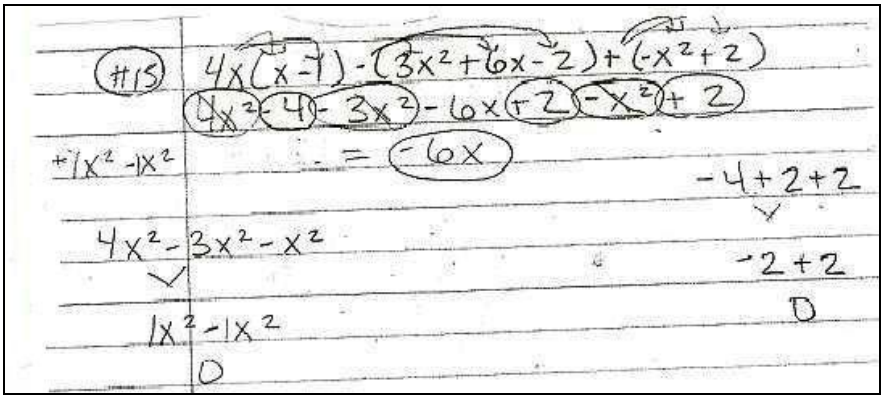
The first example is clearly a 3-point response. Short and to-the-point, it "shows **complete understanding** of the problem's **essential mathematical concepts**," with near-perfect execution of procedures.



We would recommend this second example for 3 points as well, despite the clearly incorrect answer. Analysis shows that the student has carelessly failed to eliminate the x^2 term, but the work shows "**complete understanding** of the problem's **essential mathematical concepts**" and a 3-point response can excuse a **few minor errors**.



The final example of a 3-point response also evidences what we believe to be one **minor error**, although the repercussions of the error are far-flung. The error is the first distribution of $4x$ (x-1) which becomes $4x^2 - 4$, and should be $4x^2 - 4x$. Examination of the care in the more complicated, yet correct, distribution of the negative, and in collecting like terms, leads to the conclusion that this student has "**complete understanding** of the problem's **essential mathematical concepts,**" and that this answer should be deemed a 3-point response.


#15
4x(x-1)-(3x²+6x-2)+(-x²+2)
4x²-4-3x²-6x+2-x²+2
+1x²-1x²
=-6x
-4+2+2
4x²-3x²-x²
-2+2
1x²-1x²
0

Question 15:

Perform the indicated operation and/or simplify:

$$4x(x-1)-\left(3x^2+6x-2\right)+\left(-x^2+2\right)$$

or

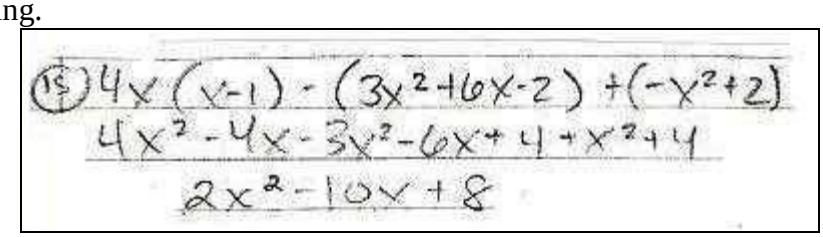
minor variations thereof

General Criteria

2-Point Response

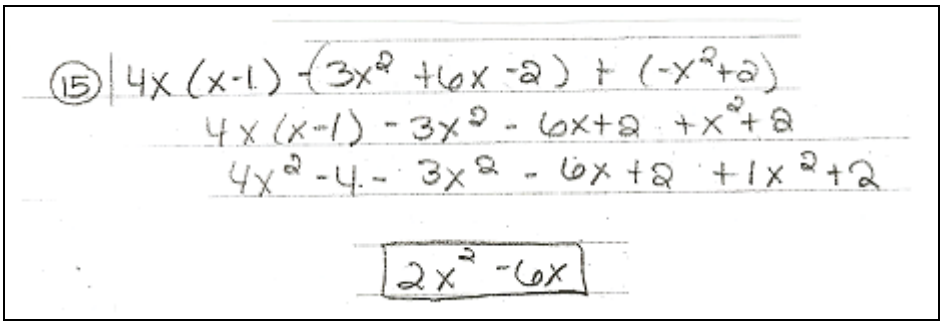
The response shows **nearly complete understanding** of the problem's **essential mathematical concepts**. The student **executes nearly all procedures** and gives **relevant responses** to **most** parts of the task. The response **may have minor errors**. The explanation detailing how the problem was solved **may not be clear**, causing the reader to make some inferences.

The first example gets the wrong answer, but as we have previously seen, this does not mean it could not be a 3-point response. This example gets 2 points because the errors here are not merely minor errors, but we feel that they exhibit a **nearly** complete understanding and detract from what would otherwise be a complete understanding.



Specifically, in the second distribution, the – (-2) becomes a +4 and, mysteriously, this error is repeated in the second distribution where a + (+2) becomes a +4, "causing the reader to make some inferences, and certainly "The explanation detailing how the problem was solved **may not be clear**."

The second example of a 2-point response similarly has two distribution errors which, in light of the fact that distribution is of such importance to the "simplification" process being tested/assessed in this question, cannot be overlooked. However, since the remaining procedures are correct, it appears that the student has "**nearly complete understanding** of the problem's **essential mathematical concepts**.



The two errors were in the second half of the distribution of $4x(x-1)$ which became -4 and should have been $-4x$, and $+(-x^2)$ which ended up as $+x^2$, but the remainder of the work was correct (using those incorrect intermediate answers.

Question 15:

Perform the indicated operation and/or simplify:

$4x(x-1)-(3x^2+6x-2)+(-x^2+2)$

or

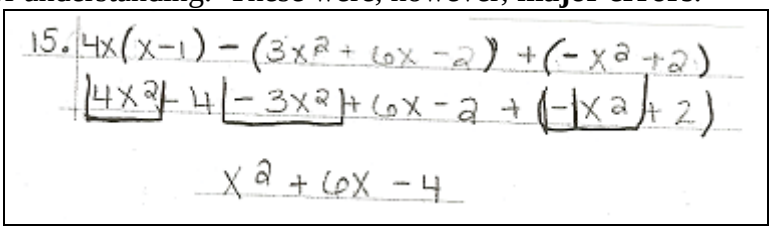
minor variations thereof

General Criteria

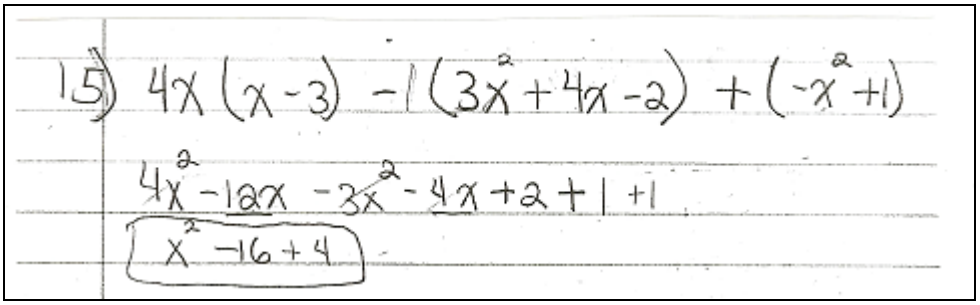
1-Point Response

The response shows **limited understanding** of the problem's **essential mathematical concepts**. The response and procedures may be **incomplete** and/or **may contain major errors**. An **incomplete** explanation of how the problem was solved **may contribute to questions as to how and why decisions were made**

Our first example shows limited understanding of distribution as he/she distributes the sign only to the first term in each parentheses and fails to fully distribute $4x^2$ to the -1 in the first parentheses. After that, the combining of like terms was acceptable, so we delivered 1 point, and were unable to conclude that there was a total lack of understanding. These were, however, **major errors**.



Similarly, this next example started out well with the first two distributions, but then, to our dismay, totally collapsed on the third distribution of $+(-x^2 + 1)$, from which we must conclude "a **limited understanding** of the problem's **essential mathematical concepts"**, but certainly "The response and procedures [were} **incomplete."**



Question 15:

Perform the indicated operation and/or simplify:

$$4x(x-1)-(3x^2+6x-2)+(-x^2+2)$$

or

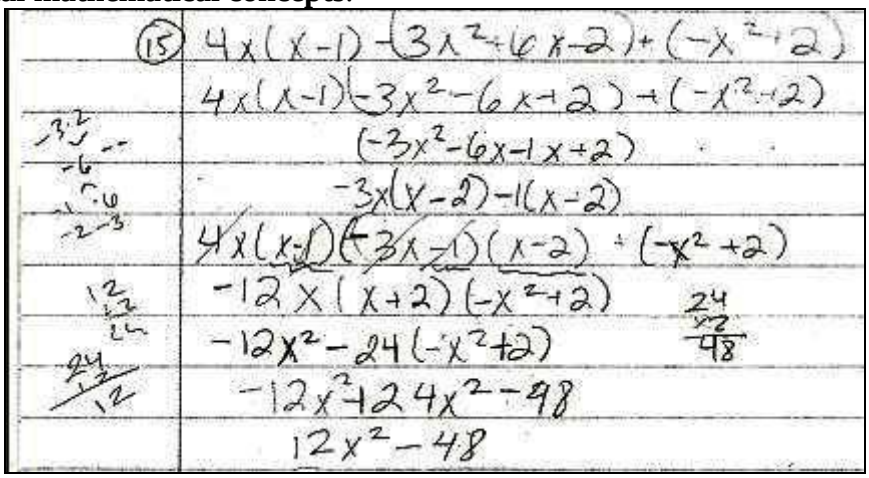
minor variations thereof

General Criteria

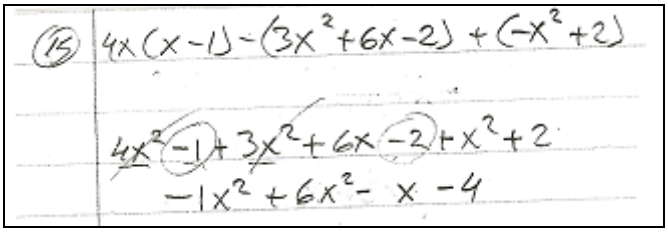
0-Point Response

The response shows **insufficient understanding** of the problem's **essential mathematical concepts**. The **procedures,** if any, contain **major errors**. There may be **no explanation** of the solution, or **the reader may not be able to understand the explanation. The reader may not be able to understand how and why decisions were made.**

This first example of a 0-point response shows a lot of work, but unfortunately the work is completely mis-directed. It quickly becomes almost impossible for the reader to follow, turns into factoring instead of simplification, and clearly shows that the student possesses "**insufficient understanding** of the problem's **essential mathematical concepts**."



The other example (below) might have garnered 1 point from the more sympathetic, but was a close call from the committee. The distribution was rife with errors, combining like terms just as poorly ($4x^2 + 3x^2$ became $-x^2 + 6x^2$, but it should have been $4x^2 - 3x^2 - x^2$ in the first place, and $-1 -2 + 2$ combined to -4? It was really hard to find anything of value here.



Question 21:
Write an Algebraic Equation for each problem (include a let statement) and use it to solve the word problem.

Martha purchased three skirts and four pairs of shoes for a total cost of $85.00. Laura purchased five skirts and two pairs of shoes for a total cost of $81.00. What are the cost of a single pair of shoes and the cost of a single skirt?

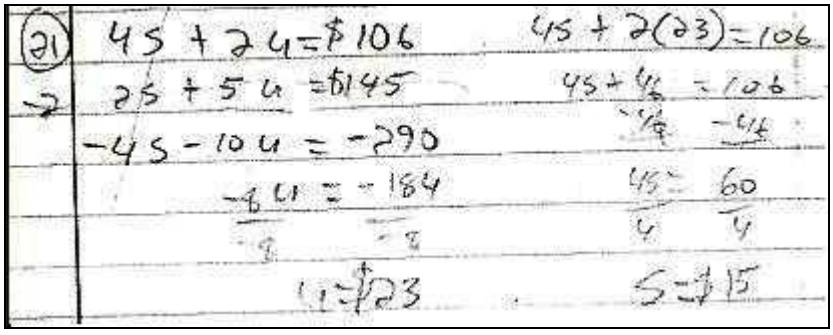
General Criteria
3-Point Response

The response shows **complete understanding** of the problem's **essential mathematical concepts**. The student **executes procedures completely** and gives **relevant responses** to **all** parts of the task. The response contains **few minor errors, if any**. The response contains a **clear, effective explanation** detailing how the problem was solved so that the reader does not need to infer how and why decisions were made.

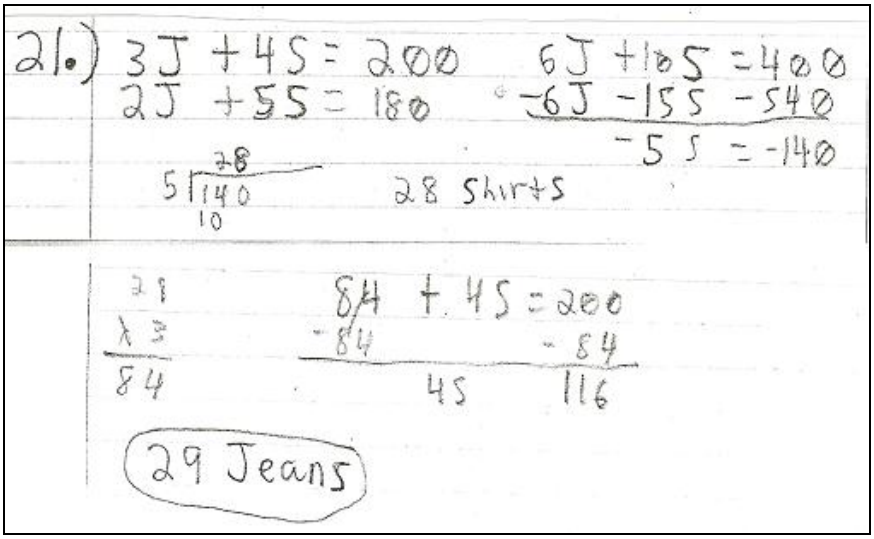
There were 3 variants of this question:

3 skirts and 4 shoes vs. 5 skirts and 2 shoes
3 jeans and 4 shirts vs. 2 jeans and 5 shirts
4 scarves and 2 umbrellas vs. 2 scarves and 5 umbrellas

The first example (scarves and umbrellas) is straight to the point. Although it <u>does</u> omit the "let" statement, it makes up for that by using "s" and "u" for the variables, and thus finds itself deserving of the 3 points.



The second example (jeans and shirts) makes a multiplication error that is careless on its face, since the student surely knows that 4S x 2 is 8S, not 10S, and the rest of the work is faultless. This minor error should not keep this answer from 3 points.



Question 21:
Write an Algebraic Equation for each problem (include a let statement) and use it to solve the word problem.

Martha purchased three skirts and four pairs of shoes for a total cost of $85.00. Laura purchased five skirts and two pairs of shoes for a total cost of $81.00. What are the cost of a single pair of shoes and the cost of a single skirt?

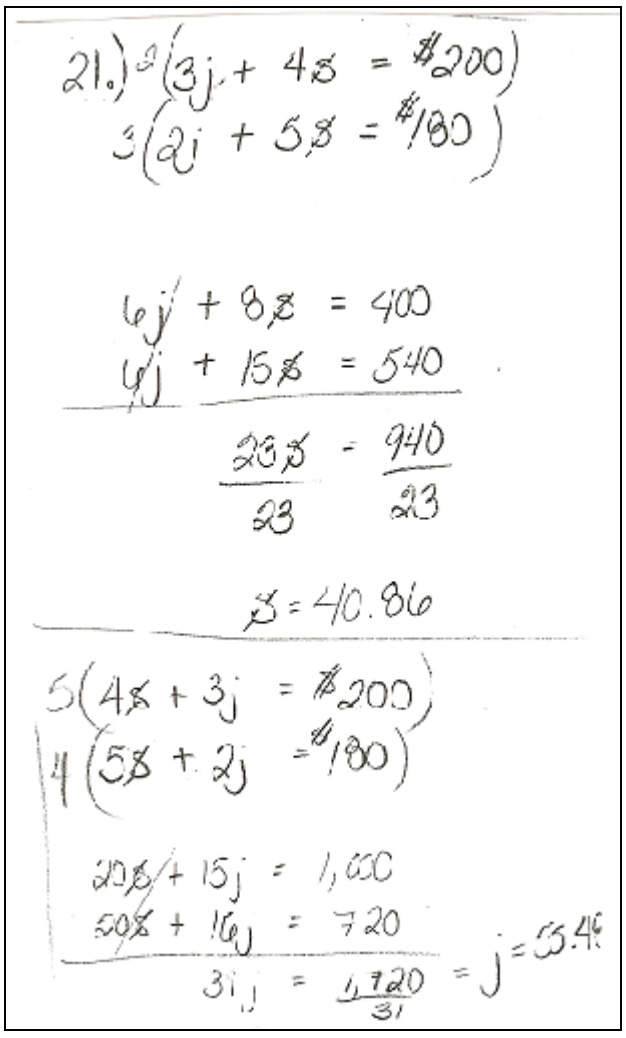
General Criteria
2-Point Response

The response shows **nearly complete understanding** of the problem's **essential mathematical concepts**. The student **executes nearly all procedures** and gives **relevant responses** to **most** parts of the task. The response **may have minor errors**. The explanation detailing how the problem was solved **may not be clear**, causing the reader to make some inferences.

Again, there are three variants of this question.

3 skirts and 4 shoes vs. 5 skirts and 2 shoes
3 jeans and 4 shirts vs. 2 jeans and 5 shirts
4 scarves and 2 umbrellas vs. 2 scarves and 5 umbrellas

This response (jeans and shirts) is an example of a 2-point response because, although it shows "**nearly complete understanding** of the problem's **essential mathematical concepts**," it has a **major** procedural error – clearly not minor. (The student fails to make the second equation negative, and 6*j* does not "eliminate" 6*j*.)


21.) 2(3j + 4s = $200)
3(2j + 5s = $180)
6j + 8s = 400
6j + 15s = 540
23s = 940
23 23
s = 40.86
5(4s + 3j = $200)
4(5s + 2j = $180)
20s + 15j = 1,000
20s + 16j = 720
31j = 1,720
31
j = 55.48

Question 21:
Write an Algebraic Equation for each problem (include a let statement) and use it to solve the word problem.

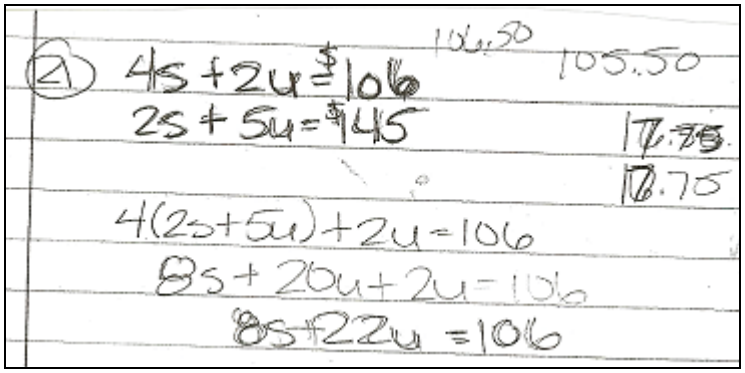
Martha purchased three skirts and four pairs of shoes for a total cost of $85.00. Laura purchased five skirts and two pairs of shoes for a total cost of $81.00. What are the cost of a single pair of shoes and the cost of a single skirt?

General Criteria
1-Point Response

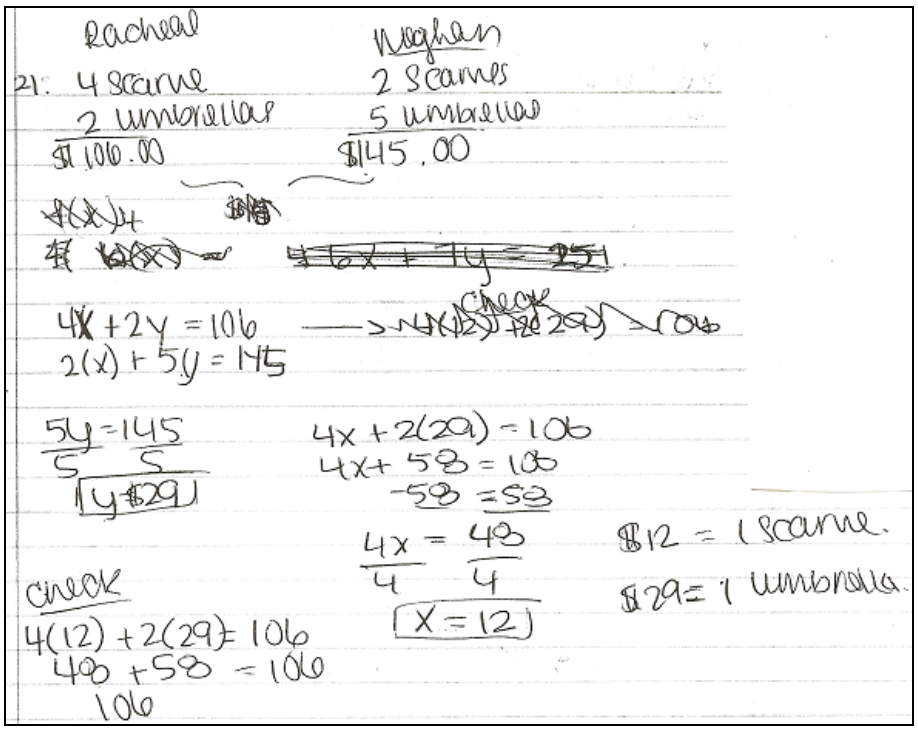
The response shows **limited understanding** of the problem's **essential mathematical concepts**. The response and procedures may be **incomplete** and/or **may contain major errors**. An **incomplete** explanation of how the problem was solved **may contribute to questions as to how and why decisions were made**.

Recall that there are three variants of this question.

The first example shows **limited understanding** and just barely deserves 1 point because he/she gets the appropriate equations in this scarves/umbrellas problem, but then tries to use the substitution method (inappropriately and with limited results).



Similarly, the second example gets the appropriate equations, but then rapidly crashes and burns as the second (correct) equation, $2x + 5y = 145$ miraculously becomes $5y = 145$ (by just disregarding the x term completely).


Rachael
Meghan
21: 4 scarves
2 umbrellas
$106.00
2 scarves
5 umbrellas
$145.00
4x + 2y = 106
2(x) + 5y = 145
5y = 145
5 5
y = $29
4x + 2(29) = 106
4x + 58 = 106
-58 = -58
4x = 48
4 4
x = 12
$12 = 1 scarf.
$29 = 1 umbrella.
check
4(12) + 2(29) = 106
48 + 58 = 106
106

Question 21:
Write an Algebraic Equation for each problem (include a let statement) and use it to solve the word problem.

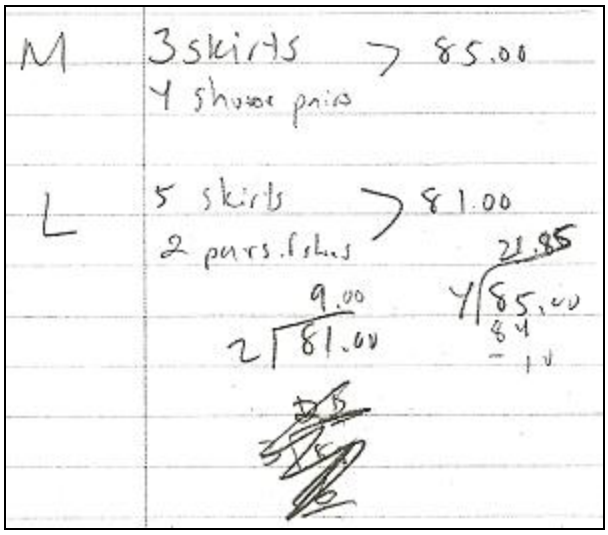
Martha purchased three skirts and four pairs of shoes for a total cost of $85.00. Laura purchased five skirts and two pairs of shoes for a total cost of $81.00. What are the cost of a single pair of shoes and the cost of a single skirt?

General Criteria
0-Point Response

The response shows **insufficient understanding** of the problem's **essential mathematical concepts**. The **procedures,** if any, contain **major errors**. There may be **no explanation** of the solution, or **the reader may not be able to understand the explanation. The reader may not be able to understand how and why decisions were made.**.

Recall that there are three variants of this question.

This example (skirts and shoes) clearly deserves 0 points as it does little more than list the facts of the question, demonstrating **insufficient understanding**, **no explanation**, and virtually no work at all, despite what appears to be arithmetic on the page.



May 6, 2011

First of all, the Developmental Mathematics Department wishes to thank the members of the Department who have agreed to participate in the Departmental Assessment project.

Copies of the Assessment Guide have been placed in your mailboxes and by now you should all have had the opportunity to receive and review the Guide. (If you have misplaced the Guide or did not receive one, another in PDF form is attached to this email.) If you have any questions, please email Mark Wiener (mwiener@bergen.edu) immediately, since the project involves evaluating MAT032 FINAL EXAM questions 8, 15 and 21 according to the scoring rubric which was modeled on (and essentially copied from) the HSPA scoring rubric.

We anticipate that you will each be able to perform this assessment scoring simultaneously with, and at the same time as, you do your regular scoring of the Final Exams. Please review the guidelines of the Rubric which are stated in general form on page 1. We have also supplied some examples from prior year finals for your guidance. For assessment purposes we are attempting to get some across-the-board uniformity. (Please note, however, that for the purposes of your course grading, you can grade your final exams however you please – as you have always done.)

As soon after the completion of grading, please supply Mark Wiener with data as follows: the number in your class having received 3's, 2's, 1's, and 0's, as to each of the 3 questions. Please utilize the following grid:

	How many 3's?	How many 2's?	How many 1's?	How many 0's?
Question 8				
Question 15				
Question 21				

Please respond to this email to acknowledge (1) receipt, (2) agreement, and (3) understanding.

Thank you again for your cooperation and assistance.

- Asst. Professor Mark Wiener