

**Prairie State College**  
**Course/Program Assessment Report**  
**Spring 2016**

|                                       |   |
|---------------------------------------|---|
| Course title/number                   | Math 085 Computational Skills II  |
| Faculty members participating         | All full-time Math faculty, Erica Copeland-Ali, Shenita Talton, Carol Bologna, Vivian Zimmerman |
| Faculty member submitting this report | Kate Sims-Drew  |
| Date submitted                        | June 1, 2016  |

**Part A: Project Overview**

**1. Course student learning outcome(s) assessed:**

*Based on your Student Learning Outcome on the official course outline.*

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| <p>1. Use the rules of signed number arithmetic to perform operations on integers. These operations include, but are not limited to, addition, subtraction, multiplication, division, exponentiation (raising numbers to powers), negation (finding additive inverses or opposites), ordering, and evaluating absolute values</p> <p>2. Translate words or problem situations to algebraic expressions.</p> <p>4. Solve one or two-step linear equations involving integers and fractions.</p> <p>6. Find multiples and factors of numbers. Find the least common multiple (LCM) and the greatest common factor (GCF) of two or three numbers.</p> <p>15. Evaluate algebraic expressions given specific values for the variables. [Problems may involve using the order of operations.]</p> <p>16. Use the order of operations to simplify arithmetic expressions. The expressions may involve integers, fractions, or decimal numbers.</p> <p>17. Collect and combine like terms to simplify algebraic expressions. The coefficients in the expressions may be integers, fractions, or decimal numbers.</p> |
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**2. Is this a follow-up to a previous assessment and related to the findings?**

No  Yes

### 3. Sections and students assessed:

| Term        | Section Numbers | # of Students Assessed* |
|-------------|-----------------|-------------------------|
| Spring 2016 | 1               | 6                       |
| Spring 2016 | 2               | 10                      |
| Spring 2016 | 3               | 10                      |
| Spring 2016 | 4               | 12                      |
| Spring 2016 | 5               | 7                       |
| Spring 2016 | 6               | 8                       |
| Spring 2016 | 7               | 8                       |
| Spring 2016 | 8               | 7                       |

\*These numbers represent the number of students who completed both assessments (week 1 and week 16)

### ***Part B: Results and Analysis***

#### **4. Assessment method: How would you evaluate the assessment method and instrument you used? Was it appropriate and did it provide the desired data? Please explain.**

Yes. It showed whether students had mastered these objectives that we identified were essential for preparing them for Algebra.

#### **5. What data was collected? How was the data analyzed? (ie, rubric, etc.) Please attach the rubric, etc., if applicable.**

All Math 085 students were asked to complete a 10 question multiple choice assessment in the first week and in the 16<sup>th</sup> week (the assessments were identical). The assessment can be found in appendix 1. Scoring was done via scantron.

#### **6. Did you meet your desired goal? Include your measurable target. (Example: Only 50 percent of students scored a 3 or better on a five-point evaluation rubric, falling short of the targeted goal of 70 percent.)**

Our goal was that the average difference between final and initial score would be significantly greater than zero for students who earned a C or better. Of the 44 students who took both assessments and passed the class, the average difference was 1.5, so we exceeded our goal. More results can be found in appendices 2 – 4.

#### **7. How do the results compare to the previous year's results (if applicable)?**

N/A

#### **8. Was this assessment useful? What strengths and/or areas for improvement were identified?**

We were hoping that our students would make more gains in their pre-Algebra skills in Math 085 in order to be prepared to take Math 090 (Elementary Algebra). We plan to use this assessment to help guide us in making changes to Math 085 so that students are better prepared. One question that students did improve on significantly was #1, where they had to describe how to solve a 2-step equation; almost half of the students who got this wrong in week 1 got it correct in week 16. However, we saw very little gain on #3 (evaluating an expression), #7 and #10 (both translating an expression into Algebra); on these problems over 70% of the students who got them wrong in week 1 got them wrong again in week 16.

**Part C: Strategies for Improvement**

**9. What strategies will be implemented to improve the outcome and student learning (if needed)?**

We plan to revisit our Math 085 curriculum in order to put less emphasis on pencil and paper computations and more emphasis on Algebraic thinking. We will also introduce the calculator in Math 085, when appropriate (currently calculator use is largely discouraged). However, since the results of this assessment could not be analyzed until the semester was over, we have not yet met as a department to discuss specifics.

**10. How will the results impact your assessment plan for next year?**

Since the project was only completed after the semester had ended, we have not discussed it as a department. Once we have discussed the results we will be able to think about what we would like to assess next year.

**Part D: Closing the Feedback Loop:**

**11. If adjunct faculty were involved in the assessment, was there any distinction in the results from those sections compared to full-time faculty sections? Please explain.**

Four of the 8 sections were taught by adjunct faculty. For sections taught by full-timers, the average difference between week 1 scores and week 16 scores for passing students was 1.76, whereas the difference for adjunct faculty sections was 1.26.

**12. Did you include any online sections of the assessment (if online sections are offered for this course). If not, how will those sections be implemented for next year?**

Math 085 is not offered online.

**13. How will you share the results with the faculty in your department/division?**

I will send out an email to all full-time faculty, we will post the results on the department website, and we will discuss it at an upcoming meeting.

## Appendix 1

### Math 085 Assessment

The following is an assessment of the Algebra readiness of students enrolled in Math 085.

On your scantron, please make sure to bubble:

- Your first and last name
- Your course and section under “Course Code” (Ex: Math 085-03 is “08503”)
- Your ID (if you do not know your ID, you can ask your instructor to look it up in Web Advisor)

**Select the single best answer from the given choices for each question. Mark all of your answers on your scantron sheet. You have 10 minutes to complete the problems.**

1. For the equation  $5x - 2 = 15$ , which of the following steps would correctly solve for  $x$ ?
  - a. Subtract 2, then divide by 5
  - b. Add 2, then divide by 5
  - c. Divide by 5, then add 2
  - d. Divide by 5, then subtract 2
  - e. None of the above
2. Which of the following is the GCF (greatest common factor) of 15 and 20?
  - a. 5
  - b. 10
  - c. 60
  - d. 300
  - e. None of the above

3. Evaluate  $b^2 - 4ac$  for  $a = 3$ ,  $b = -2$ ,  $c = -1$

- a. -16
- b. -8
- c. 8
- d. 16
- e. None of the above

4. Which of the following is the LCM (least common multiple) of 6 and 8?

- a. 2
- b. 8
- c. 24
- d. 48
- e. None of the above

5. Combine like terms:  $5a + 6 + 9b - 2b + a$

- a.  $13ab + 6$
- b.  $19ab$
- c.  $6a + 7b + 6$
- d.  $5a^2 + 7b^2 + 6$
- e. None of the above

6. Which of the following is a solution to the equation  $\frac{x}{4} + 1 = 8$  ?
- a.  $x = 3$
  - b.  $x = 8$
  - c.  $x = 32$
  - d.  $x = 36$
  - e. None of the above
7. Which of the following is a correct translation of the phrase “two-fifths of  $x$ ”?
- a.  $\frac{2}{5} + x$
  - b.  $\frac{2x}{5}$
  - c.  $\frac{2}{5}x$
  - d. Both b and c
  - e. None of the above
8. Combine like terms:  $7 + 2x^2 + 5x + x^2$
- a.  $15x^3$
  - b.  $8x^3 + 7$
  - c.  $8x^2 + 7$
  - d.  $3x^2 + 5x + 7$
  - e. None of the above

9. If two numbers multiply to be a positive number and add to be a negative number, what are the signs of the two numbers?

- a. Both numbers are positive
- b. The larger number is positive, the smaller number is negative
- c. The larger number is negative, the smaller number is positive
- d. Both numbers are negative
- e. None of the above

10. Which of the following means 5 less than a number?

- a.  $n - 5$
- b.  $5 - n$
- c.  $5 < n$
- d.  $\frac{n}{5}$
- e. None of the above

**Appendix 2—Scores for students who completed both assessments (out of 10 questions)**

|                |                |                                       |   |
|----------------|----------------|---------------------------------------|---|
| Jan<br>Average | May<br>Average | Average increase<br>(all 68 students) | Average increase<br>(44 passing students) |
| 2.66           | 3.97           | 1.31                                  | 1.50                                      |

**Appendix 3—Success rates by problem  
(includes all students regardless of whether they took both assessments and whether they passed)**

| Problem | % correct in week 1 | % correct in week 16 |
|---------|---------------------|----------------------|
| 1       | 32.4                | 67.6                 |
| 2       | 56.6                | 50                   |
| 3       | 15.2                | 20.6                 |
| 4       | 13.8                | 38.2                 |
| 5       | 44.8                | 60.3                 |
| 6       | 27.6                | 42.6                 |
| 7       | 20                  | 22.1                 |
| 8       | 40.7                | 64.7                 |
| 9       | 26.9                | 17.6                 |
| 10      | 11.7                | 13.2                 |

**Appendix 4—progression of students who completed both assessments**

All values are given as percents; “R->W” denotes the percentage of students who got the question right the first time and wrong the second time, etc.

| Problem | W->W | W->R | R->W | R->R |
|---------|------|------|------|------|
| 1       | 26.5 | 48.5 | 5.9  | 19.1 |
| 2       | 23.5 | 17.6 | 26.5 | 32.4 |
| 3       | 76.5 | 13.2 | 2.9  | 7.4  |
| 4       | 54.4 | 30.9 | 7.4  | 7.4  |
| 5       | 30.9 | 26.5 | 8.8  | 33.8 |
| 6       | 47.1 | 27.9 | 10.3 | 14.7 |
| 7       | 70.6 | 16.2 | 7.4  | 5.9  |
| 8       | 29.4 | 29.4 | 5.9  | 35.3 |
| 9       | 67.6 | 11.8 | 14.7 | 5.9  |
| 10      | 77.9 | 7.4  | 8.8  | 5.9  |