### Element 3: Assessment Plan

<table>
<thead>
<tr>
<th>Learning Objectives</th>
<th>Assessment Methods</th>
<th>Standard of Performance/Expectation</th>
<th>Rationale</th>
<th>Adaptations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will be able to solve one variable equations with variables on one side of the equation by using the addition, subtraction, multiplication or division rules of equality.</td>
<td>Pre-Test (Formative): Question: 1 Quiz (Formative) Questions: 1, 2, 3, 4, 5, 6 Homework (Formative) Section 3.1, 3.2, &amp; 3.3 Lecture Checkpoints (Formative) Unit Test (Summative) Questions: 1, 2, 3, 4, 5, 6</td>
<td>Students must achieve the following accuracy in order to have met the objective: * 4 out of 6 on the unit test</td>
<td>I gave my students the indicated assessments in order to do the following: * The pre-test allows me to see what prior knowledge the students have. * The quiz provides a checkpoint in the middle of the unit to see progress on reaching the objective. * Homework provides exercises to practice and perfect the skills needed to achieve the objectives. * The unit test formally assesses the student understanding of the material covered in the unit, provides criteria for reaching the objectives and creates a starting point from which to base future unit objectives.</td>
<td>Students with learning disabilities can have extra time with the test and quiz. To help students with visual impairments, we can provide larger print copies of the quizzes and tests. For the struggling students, we can provide a list of steps for them to follow while doing their homework and in class activities. Students that are more kinesthetic can be introduced to the use of algebra tiles to solve equations.</td>
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Students will be able to correctly: | Homework (Formative) | Students must achieve the following | I gave my students the indicated assessments in order to do the following: * The pre-test allows me to | Students with learning disabilities can |
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<tr>
<th>Solve one variable equations with the variable on both sides of the equation by using the addition, subtraction, multiplication, or division rules of equality.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 3.4 #1 and 3.4 #2 Lecture Checkpoints (Formative) In-Class Activity (Formative) Unit Test (Summative) Questions: 11, 12</td>
</tr>
<tr>
<td>Accuracy in order to have met the objective: 1 out of 2 on the Unit Test</td>
</tr>
<tr>
<td>See what prior knowledge the students have. The quiz provides a checkpoint in the middle of the unit to see progress on reaching the objective. Homework provides exercises to practice and perfect the skills needed to achieve the objectives. Homework provides exercises to practice and perfect the skills needed to achieve the objectives. The in-class activities help me see how the students are progressing and allow me to change up instructional strategies. The unit test formally assesses the student understanding of the material covered in the unit, provides criteria for reaching the objectives and creates a starting point from which to base future unit objectives.</td>
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<tr>
<td>Students will be able to correctly solve linear equations with one variable by combining like terms first and then using the addition, subtraction, multiplication</td>
</tr>
<tr>
<td>Pre-Test (Formative) Question: 2 Quiz (Formative) Questions: 7, 8 Homework (Formative) Students must achieve the following accuracy in order to have met the objective: 2 out of 3 on the unit test</td>
</tr>
<tr>
<td>I gave my students the indicated assessments in order to do the following: The pre-test allows me to see what prior knowledge the students have. The quiz provides a checkpoint in the middle of the unit to see progress on reaching the objective. Homework provides exercises to practice and perfect the skills needed.</td>
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Students with learning disabilities can have extra time with the test and quiz. To help students with visual impairments, we can provide larger print copies of the quizzes and tests. Students that are more kinesthetic can be introduced to the use of algebra tiles to solve equations. For the struggling students, we can provide a list of steps for them to follow while doing their homework and in class activities.
Students will be able to correctly solve one variable linear equations by using the distributive property to simplify first and the solve using the addition, subtraction, multiplication, and division properties of equality when given a linear equation.

<table>
<thead>
<tr>
<th>Students must achieve the following accuracy in order to have met the objective:</th>
<th>Students that are more kinesthetic can be introduced to the use of</th>
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<tbody>
<tr>
<td>• 2 out of 3 on the unit test</td>
<td>copies of the quizzes and tests.</td>
</tr>
</tbody>
</table>

I gave my students the indicated assessments in order to do the following:

- The pre-test allows me to see what prior knowledge the students have.
- The quiz provides a checkpoint in the middle of the unit to see progress on reaching the objective.
- Homework provides exercises to practice and perfect the skills needed to achieve the objectives.
- The unit test formally assesses the student understanding of the material covered in the unit, provides criteria for reaching the objectives and creates a starting point from which to base future unit objectives.

For the struggling students, we can provide a list of steps for them to follow while doing their homework and in class activities.

Students with learning disabilities can have extra time with the test and quiz.

To help students with visual impairments, we can provide larger print copies of the quizzes and tests.

For the struggling students, we can provide a list of steps for them to follow while doing their homework and in class activities.

Students that are more kinesthetic can be introduced to the use of

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<tr>
<th>Pre-Test (Formative)</th>
<th>Students will be able to correctly solve one variable linear equations by using the distributive property to simplify first and the solve using the addition, subtraction, multiplication, and division properties of equality when given a linear equation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question: 3</td>
<td>Students must achieve the following accuracy in order to have met the objective:</td>
</tr>
<tr>
<td>Quiz (Formative)</td>
<td>• 2 out of 3 on the unit test</td>
</tr>
<tr>
<td>Questions: 9, 10</td>
<td>Students must achieve the following accuracy in order to have met the objective:</td>
</tr>
<tr>
<td>Homework (Formative)</td>
<td>• 2 out of 3 on the unit test</td>
</tr>
<tr>
<td>Section 3.2, 3.3, 3.4</td>
<td>Students must achieve the following accuracy in order to have met the objective:</td>
</tr>
<tr>
<td>Lecture Checkpoints (Formative)</td>
<td>• 2 out of 3 on the unit test</td>
</tr>
<tr>
<td>Unit Test (Formative)</td>
<td>Students must achieve the following accuracy in order to have met the objective:</td>
</tr>
<tr>
<td>Questions: 9, 10, 11</td>
<td>Students must achieve the following accuracy in order to have met the objective:</td>
</tr>
<tr>
<td>Unit Test (Summative)</td>
<td>Students must achieve the following accuracy in order to have met the objective:</td>
</tr>
<tr>
<td>Questions: 9, 10, 11</td>
<td>Students must achieve the following accuracy in order to have met the objective:</td>
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</tbody>
</table>
Students will be able to solve proportions by using cross products and if necessary the distribution property when given a proportional problem.

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<th><strong>Pre-Test</strong> (Formative)</th>
<th>Students must achieve the following accuracy in order to have met the objective:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question: 4</td>
<td>Students must achieve the following accuracy in order to have met the objective:</td>
<td><strong>I gave my students the indicated assessments in order to do the following:</strong></td>
</tr>
<tr>
<td><strong>Homework</strong> (Formative)</td>
<td></td>
<td>• The pre-test allows me to see what prior knowledge the students have.</td>
</tr>
<tr>
<td>Section 3.5 and 3.6</td>
<td></td>
<td>• The quiz provides a checkpoint in the middle of the unit to see progress on reaching the objective.</td>
</tr>
<tr>
<td><strong>Lecture Checkpoints</strong> (Formative)</td>
<td></td>
<td>• Homework provides exercises to practice and perfect the skills needed to achieve the objectives.</td>
</tr>
<tr>
<td><strong>Unit Test</strong> (Summative)</td>
<td></td>
<td>• The unit test formally assesses the student understanding of the material covered in the unit, provides criteria for reaching the objectives and creates a starting point from which to base future unit objectives.</td>
</tr>
<tr>
<td>Questions: 13, 14, 15, 16</td>
<td></td>
<td>Students with learning disabilities can have extra time with the test and quiz.</td>
</tr>
</tbody>
</table>

To help students with visual impairments, we can provide larger print copies of the quizzes and tests.

Proportions are can be demonstrated with “parts” or “wholes” of objects and can help the visual learners.

For the struggling students, we can provide a list of steps for them to follow while doing their homework and in class activities.

Students must achieve the following accuracy in order to have met the

**Pre-Test** (Formative)

Question: 5

**Homework**

Students must achieve the following accuracy in order to have met the

**I gave my students the indicated assessments in order to do the following:**

- The pre-test allows me to see what prior knowledge the students have.
- The quiz provides a

Students with learning disabilities can have extra time with the test and quiz.
Students will be able to solve a problem in the context of real world situation by solving linear equations, using proportions, or using percents correctly.

<table>
<thead>
<tr>
<th>Pre-Test (Formative)</th>
<th>Students must achieve the following accuracy in order to have met the objective:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question: 6</td>
<td>2 out of 3 on the unit test.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quiz (Formative)</th>
<th>Students must achieve the following accuracy in order to have met the objective:</th>
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</thead>
<tbody>
<tr>
<td>Question: 11</td>
<td>2 out of 3 on the unit test.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Homework (Formative)</th>
<th>Students must achieve the following accuracy in order to have met the objective:</th>
</tr>
</thead>
<tbody>
<tr>
<td>All sections</td>
<td>2 out of 3 on the unit test.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lecture Checkpoints (Formative)</th>
<th>I gave my students the indicated assessments in order to do the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Test (Summative)</td>
<td>The pre-test allows me to see what prior knowledge the students have.</td>
</tr>
<tr>
<td>Question 21, 22, 23</td>
<td>The quiz provides a checkpoint in the middle of the unit to see progress on reaching the objective.</td>
</tr>
</tbody>
</table>

| Lecture Checkpoints (Formative) | Homework provides exercises to practice and perfect the skills needed to achieve the objectives. |
| Unit Test (Summative)          | Homework provides exercises to practice and perfect the skills needed to achieve the objectives. |
| Questions: 18, 19, 20          | The unit test formally assesses the student understanding of the material covered in the unit, provides criteria for reaching the objectives and creates a starting point from which to base future unit objectives. |

| Unit Test (Summative)          | To help students with visual impairments, we can provide larger print copies of the quizzes and tests. |
| Questions: 21, 22, 23          | For the struggling students, we can provide a list of steps for them to follow while doing their homework and in class activities. |

Students with learning disabilities can have extra time with the test and quiz.

To help students with visual impairments, we can provide larger print copies of the quizzes and tests.

When it comes to word provides we can provide more challenging ones for gifted students and
reaching the objectives and creates a starting point from which to base future unit objectives. easier ones for weaker students. We can also provide steps for students to follow when solving word problems.

Most of my instructional strategies involved lecture and checkpoints for skills. This was reflected in the skill based nature of the questions on the assessments. I have included some graphical representations as instructional strategies but those would be difficult to use in assessments. The media usages and use of real-life situations help the students with the word problems on the different assessments. Overall, the assessments really reflect the performance of the students using specific skills and performing specific tasks. This follows along with how the notes and the lectures were set up in class.

Assessments are attached.
Pre-Quiz – Chapter 3

Solve the following equations.

1. \(12 = 2x - 8\) \hspace{2cm} 2. \(x + 11 + 8x = 38\)

3. \(50 = -5(3n + 5)\) \hspace{2cm} 4. \(\frac{8}{m - 3} = \frac{4}{m}\)

5. 90 is what percent of 200.

6. Kim is tutoring John in math. Kim charges $20 plus $10 per hour of tutoring. How many hours does she have to tutor to make $300? (Write and solve an equation)

\[
20 + 10x = 300, \quad x = 28 \text{ hours}
\]
Solve the one-step equation. (LT 3.1)

1. $9 + x = 7$
2. $y - 5 = -11$
3. $-7b = -56$
4. $\frac{f}{-3} = -30$

Solve the two-step equation. (LT 3.2)

5. $9w - 4 = 14$
6. $23 = 1 - d$

Solve the equation. (LT 3.3 and 3.4)

7. $33 = 4m - 7m$
8. $23x - 8 - 14x = 10$

9. $7(h + 3) + 4 = -3$
10. $\frac{2}{3}(4x - 7) = -2$

Apply concepts in real world situations. (LT 3.A)

11. You are moving. You rented a truck for $15 an hour and rented a dolly for $5 per hour. The dolly and the truck are rented for the same amount of time. You also paid a friend $20 to help out. The total cost of your move was $80. How long did you rent the truck and dolly?
Solve the one-step equation. (LT 3.1)

1. $9 + x = 7$
   \[ x = -2 \]
2. $y - 5 = -11$
   \[ y = -6 \]
3. $-7b = -56$
   \[ b = 8 \]
4. $f = -30$
   \[ f = 90 \]

Solve the two-step equation. (LT 3.2)

5. $9w - 4 = 14$
   \[ w = 2 \]
6. $23 = 1 - d$
   \[ d = -22 \]

Solve the equation. (LT 3.3 and 3.4)

7. $33 = 4m - 7m$
   \[ m = -11 \]
8. $23x - 8 - 14x = 10$
   \[ x = 2 \]
9. $7(h + 3) + 4 = -3$
   \[ h = -4 \]
10. $\frac{2}{3} (4x - 7) = -2$
    \[ x = 1 \]

Apply concepts in real world situations. (LT 3.A)

11. You are moving. You rented a truck for $15 an hour and rented a dolly for $5 per hour. The dolly and the truck are rented for the same amount of time. You also paid a friend $20 to help out. The total cost of your move was $80. How long did you rent the truck and dolly?
    \[ 80 = 15h + 5h + 20; h = 3 \text{ hours} \]
Solve the following equations. (LT 3.1, LT 3.2, LT 3.3, LT 3.4, & LT 3.5)

1. \(-8 + x = 12\)  
2. \(15 = \frac{3}{5}n\)  
3. \(x + \frac{3}{2} = \frac{1}{2}\)

4. \(\frac{b}{4} + 1 = 3\)  
5. \(-\frac{2}{3}c + 6 = -12\)  
6. \(17 = 9 - 4y\)

7. \(x + 11 + 8x = 38\)  
8. \(7m - 4 - 2m = 6\)

9. \(10x - 9(x + 6) = 31\)  
10. \(50 = -5(3n + 5)\)

11. \(9 - 5z = 12 - (6z + 7)\)  
12. \(0.5n + 2.8 - 0.4n = 6.2 - 0.1n\)

Solve proportions using cross products. (LT 3.6)

\[\frac{c}{4} = \frac{3}{2}\]  
\[\frac{16}{9} = \frac{-4t}{27}\]

Solve proportions using the distributive property. (LT 3.7)
15. \[ \frac{8}{m - 3} = \frac{4}{m} \]

16. \[ \frac{5}{2d - 3} = \frac{10}{d + 3} \]

Solve percent problems. (LT 3.8)

Show your work either in a PROPORTION or PERCENT EQUATION

18. 48 is 12% of what number? 
19. What number is 15% of 40?

20. What percent of 80 is 36?

Apply concepts in real world situations. (LT 3.A)

21. A contractor purchases ceramic tile to remodel a kitchen floor. The cost of is $4 per tile and $17.82 for grouting material. If the contractor is charged a total of $545.82, how many ceramic tiles did the contractor purchase? (Write and solve an equation)

22. Central High’s enrollment decreases at an average rate of 55 students per year, while Washington High’s enrollment increases at an average rate of 70 students per year. Central High has 2176 students and Washington High has 1866 students. If enrollments continue to change at the same rate, when will the two schools have the same number of students? (Write and solve an equation)

23. In a recent election, 16,400 registered voters voted, which was a 32% turnout. How many total registered voters are there in the county? (Write and solve a percent proportion)
TEACHER WORK SAMPLE

Algebra I

Name: ANSWER KEY

Hour: ______

TEST Chapter 3  SHOW ALL YOUR WORK TO RECEIVE MAXIMUM CREDIT!!!!

Solve the following equations. (LT 3.1, LT 3.2, LT 3.3, LT 3.4, & LT 3.5)

1. \(-8 + x = 12\)  
2. \(15 = \frac{3}{5} n\)  
3. \(x + \frac{3}{2} = \frac{1}{2}\)

\(x=20\)  
\(n=25\)  
\(x=-1\)

4. \(\frac{b}{4} + 1 = 3\)  
5. \(-\frac{2}{3}c + 6 = -12\)  
6. \(17 = 9 - 4y\)

\(b=8\)  
\(c=27\)  
\(y=-2\)

7. \(x + 11 + 8x = 38\)  
8. \(7m - 4 - 2m = 6\)

\(x=3\)  
\(m=2\)

9. \(10x - 9(x + 6) = 31\)  
10. \(50 = -5(3n + 5)\)

\(x=85\)  
\(n=-5\)

11. \(9 - 5z = 12 - (6z + 7)\)  
12. \(0.5n + 2.8 - 0.4n = 6.2 - 0.1n\)

\(n=17\)  
\(z=-4\)

Solve proportions using cross products. (LT 3.6)

13. \(\frac{c}{4} = \frac{3}{2}\)  
14. \(\frac{16}{9} = \frac{-4t}{27}\)

\(c=6\)  
\(t=-12\)
Solve proportions using the distributive property. (LT 3.7)

15. \[ \frac{8}{m-3} = \frac{4}{m} \]
   \[ [m=-3] \]

16. \[ \frac{5}{2d-3} = \frac{10}{d+3} \]
   \[ [d=3] \]

Solve percent problems. (LT 3.8)

Show your work either in a PROPORTION or PERCENT EQUATION

18. 48 is 12% of what number?

19. What number is 15% of 40?

20. What percent of 80 is 36?

Apply concepts in real world situations. (LT 3.A)

21. A contractor purchases ceramic tile to remodel a kitchen floor. The cost of is $4 per tile and $17.82 for grouting material. If the contractor is charged a total of $545.82, how many ceramic tiles did the contractor purchase? (Write and solve an equation)

\[ 4t + 17.82 = 545.82; \ t=132 \]

22. Central High’s enrollment decreases at an average rate of 55 students per year, while Washington High’s enrollment increases at an average rate of 70 students per year. Central High has 2176 students and Washington High has 1866 students. If enrollments continue to change at the same rate, when will the two schools have the same number of students? (Write and solve an equation)

\[ 2175 - 55y = 1866 + 70y ; \ y \ 2.48 \text{ years} \]

23. In a recent election, 16,400 registered voters voted, which was a 32% turnout. How many total registered voters are there in the county? (Write and solve a percent proportion)

\[ \frac{16,400}{x} = \frac{32}{100} ; \ x = 51,250 \]
Element 6: Analysis of Student Learning

Whole Group Analysis

The following graph in Figure 1 is based on the percentage of students that met each objective in the pre- and post-tests. On the pre-test, there was one question that covered each objective with the exception of objective two. Objective two was added based on the pre-test results as indicated in element two. Thus, the percentage on the pre-test for each objective is the percentage of students that answered that question correctly. The post-test percentages are the percentage of students that met the objective criteria as outlined in element three.

![Percent of Students that Met Each Objective](image)

Figure 1.

The exact percentage of students that met each objective are outlined in Figure 2 and the additional number of students that met each objective on the post-test as compared to the pre-test are displayed in Figure 3. A negative number indicates that the number of students that met the objective decreased from the pre- to post-test. These figures are located on the following page.
As indicated by the Figures 1, 2, and 3, the number of students that met the criteria for each objective increased from the pre-test to the post-test for each objective with the exception of objective three and objective seven. This prompts a closer look at each of these objectives.

**Objective three:** Students will be able to correctly solve linear equations with one variable by combining like terms first and then using the addition, subtraction, multiplication, and division properties of equality when given a linear equation with multiple instances of the same variable.

The decrease in percentages is probably partly due to the difficulty of the questions on the post-test. The pre-test question was a standard combining like terms question. It had the students combine only two terms and they were whole, positive numbers. The variables were also only on one side. On the post-test, questions number 7, 8, and 12 assessed the objective. Number 7 is the exact same problem as the pre-test question and number 8 is a very similar problem. On number 8, the problem requires that the student combine like-terms including
one that has a negative sign. Students often forget to include the negative sign when combining like terms. Number 12 is a different story. Not only does it require combining like-terms, it also requires that students solve an equation with variables on both sides of the equation and it has decimals. Students struggle greatly with decimals and when you have an additional step of moving the variables to one side, this could cause issues. Only nine students got this question completely right. Twelve students got each of the other two questions correct. It is evident that question 12 is the problem question. If the students missed this question, they were one step away from not meeting the objective. It is probably due to the decimals and the negative in question number 8 that many students did not meet that objective. In the future, I will concentrate on adding more problems in instruction with decimals and negatives when combining like terms. I will also use a slightly more difficult problem for the pre-test to hopefully get more accurate results.

Objective seven: Students will be able to solve a problem in the context of real world situation by solving linear equations, using proportions, or using percents correctly.

This was another situation where the performance on the post-test was one less than the pre-test. This objective pretty much covers word problems that use the concepts in the other objectives. On the pre-test, there was a simple two step equation to set-up and solve. On the post-test there was a percent proportion word problem, a two-step equation word problem, and a word problem that sets up an equation with variables on both sides. To meet the objective, the student must get two out of the three questions correct on the post-test. The percent proportion equation and the equation with variables on both sides caused the students the most trouble yielding 9 and 7 correct responses respectively. If the students missed these two questions they would not meet the objective.
There are many reasons why the students struggled with these additional two problems. The percent proportion problem is a difficult one because of how we taught percent proportions. We tended to focus on the key words such as “is” and “of” and where they correspond in the proportion, we forgot to relate it as the “part” to the “whole.” This understanding is essential for students to correctly solve a word problem of this type. The problem with variables on both sides becomes difficult for students because there is a lot of information to sort through. The students struggle separating the pieces out and figuring out that they have to set the two expressions equal to one another. More often than not, the students combine the various parts incorrectly. Another aspect that the students forget on that word problem is the key word “decreases.” That indicates a negative slope and if the students do manage to put the various parts in the correct locations, many of the students will forget the negative sign.

This information definitely informs my future instruction. I will plan on discussing percent proportions more generically by describing the “part” and the “whole.” I will also spend more time emphasizing word problems that use percents. For the word problem that has variables on both sides of the equation, I will emphasize sorting the different information to create the expression. I will also emphasize writing what is happening down in words first to inform the grouping and relation of the numbers. This should help the student create the expressions and equations. I will plan on including different word problems on the pre-test in the future to compare more directly to the different types of word problems.

**Subgroup Analysis**

There is not a tremendous amount of diversity in the classroom at Platte County nor are there obvious subgroups for me to look at. I have noticed that because of the classroom
arrangement and my own tendencies that I tend to stray towards the left side of the room.

From what I have reflected on, I think there is the possibility that the left hand side of the room gets more questions asked of them and quicker assistance from me when the need help. If this is correct, the left hand side should have performed better on the objectives than the right hand side. Figure 4 demonstrates the percentage of the students that met the objective on the post-test on the left side of the room as compared to the right side.

![Classroom Orientation and Objective Performance](image)

**Figure 4.**

As you can see the results demonstrate a consistent higher achievement rate by the left side of the classroom. As mentioned before, this probably partly due to the amount of attention these students receive on a daily basis because they are in my proximity. Another factor that plays into this is how the students are seated. Based on previous tests and work, the three weakest students sit on the right side of the room but slightly towards the middle and some of the best students sit on the left hand side of the room. This would definitely skew the results. I will make an effort to be more balanced in my instruction in the future. However, let’s
take a closer look at objective one and objective four, objective one because the results are very consistent with one another and objective four because there is such a difference in the results.

**Objective one**: Students will be able to solve one variable equations with variables on one side of the equation by using the addition, subtraction, multiplication or division rules of equality.

Both sides of the room experienced similar high results. I think this objective was relatively unaffected by the classroom orientation because this is a skill previously learned. This skill is emphasized strongly in middle school math, thus most the students were probably moderately proficient before they began the unit. This was demonstrated by the pre-test where 71% of the students got the question correct that covered that objective. Less emphasis could be placed on this objective in the future.

**Objective four**: Students will be able to correctly solve one variable linear equations by using the distributive property to simplify first and the solve using the addition, subtraction, multiplication, and division properties of equality when given a linear equation.

The high contrast in the achievement levels of this objective is truly surprising. This objective typically involves a lot of steps because when you distribute it often means changing signs and then combining like terms afterwards. This can cause a lot of trouble to weaker students. I am not sure, but I would guess the reason the left side excelled, other than extra reinforcement by me, would be that the stronger students on the left side catch all the little errors and excel at following the extra steps. The weaker students on the right side would
struggle more with the extra steps and potentially mess up the distribution and sign changes. This would only heighten the gap between students. In the future, I will be sure to continually integrate more distribution problems especially for the weaker students.

Overall the students did well with the objectives and I was pleased with their performance. There were two objectives where the students did worse on the post-test but this probably due to instructional error, the ease of the pre-test problem, and the difficulty of the post-test problems. With my subgroup analysis, I found that the left half of the room did better on all the objectives. This is probably due to my tendency to stay on that side of the room and the stronger students on that side of the room.