Ratios and Proportional Reasoning

Assignment #3

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Abstract

Each course a teacher teaches has a specific list of standards and objectives students are expected to have learned by the end of the course. Obviously no teacher can teach every single standard in one unit; therefore each unit has its own particular standards and objectives for students to meet prior to completing the unit. One of the teacher’s primary responsibilities is to continually assess students throughout the learning process of each unit covered through informal and formal formative assessments. At the end of each unit teachers are expected to give students some type of a summative assessment to measure all learning that took place throughout the unit. In order for these formative and summative assessments to be reliable in the end, it is important that teachers first create a test blue print to organize the important ideas of the unit in relation to the different levels of cognitive thinking. This paper follows a seventh grade mathematics teacher through the process of reflecting on formative assessments for a ratios and proportions unit in order to create a valid, reliable summative assessment.
In a world of education where Common Core State Standards are heard and seen everywhere comes a term every teacher hears in their dreams: assessment. Now more than ever before, teachers are being pushed to assess their students daily. These daily assessments come in a variety of forms including informal and formal formative assessments, as well as summative assessments. Creating these assessments may not be as easy as they sound as these assessments are used to pave the pathway for each student to learn and meet the standards and objectives set for each unit of study. To help create valid and meaningful assessments teachers are encouraged to first create a test blueprint that aligns each part of the unit’s standards and objectives with the different levels associated with Bloom’s taxonomy. Then based upon this blueprint teachers can produce assessments that are well-aligned with the standards.

**Formative Assessment**

Once a teacher creates a test blueprint for the unit they will be teaching their students they may begin to create formative assessments. These formative assessments will assess the student’s content knowledge at various points throughout the unit. These assessment points are used to inform the teacher of any misconceptions students have as the unit is taught. Based upon the information attained by the teacher both formally and informally from these formative assessments, teachers can alter their lesson plans to fit the needs of students. For example, if a formative assessment shows that many of the students do not understand a concept that has been covered the teacher will be alerted and will therefore be able to reflect on the teaching that has taken place thus far in order to alter future lessons to cover the same material in another way.

Formative assessments are beneficial in that they allow the teacher to realize what concepts their students do not understand before it is too late. If a teacher did not know a student
had a misconception or misunderstanding until after the student took the test, then what good
would that do? This scenario would not be beneficial to the student or the teacher. First off the
teacher would not know until after all the material has been covered and secondly the student
may begin to lose interest in the course if they know they will fail in the end.

Both formal and informal formative assessments allow teachers and students to have a
dialogue that allows them to share their knowledge on the learning taking place in the classroom.
Many times formative assessments are not given for a grade but to see how the student is
progressing with their learning. These formative assessments are designed to help prepare
students for their summative assessment so that when they take the summative assessment there
are no surprises.

**Summative Assessment**

The primary purpose of giving our students summative assessments is so that teachers
can systematically record the overall achievement levels of their students learning (Jennings,
1999). These summative assessments are designed to measure how well students meet the
standards and objectives taught during the unit. Summative assessments come in a variety of
forms including closed and open book exams, oral exams, projects, and presentations (Iannone &
Simpson, 2011). For the purposes of this review we will be focusing on the traditional paper and
pencil, closed book tests.

In the 1960s and 1970s three studies were performed at the university level to determine
connections between grades and student learning as researchers believed that student learning
was strictly motivated by summative assessments alone (Joughin, 2010). The first study known
as *making the grade* completed by Becker, Greer, and Hughes in 1968 at the University of
Kansas found that many of the students were not in college to learn; instead they only valued their grade point average (Joughin, 2010). The second and third studies conducted at MIT between 1961 and 1964 and at the University of Edinburgh in 1974, respectfully, found that the students sought out from their professors what was expected of them and then based their approach to studying off of this information (Joughin, 2010). Although these studies are older, they still bring valid facts about student learning. If you ask any student why they are learning a particular topic in school, chances are their answer will be because the state says they need to know it and therefore they need to learn it for when they take the test.

Now is the time when “classroom assessment is changing” (Haladyna, Downing, & Rodriguez, 2002, p. 310). Therefore as teachers we need to stop over relying on question formats that solely assess a student’s recall of content knowledge and begin to create questions that reach the upper levels of cognitive thinking. The items we as teachers choose to assess our students on need to be aligned with standards and objectives of the content area being taught as well as clearly show what we as teachers value as important and want our students to learn for a reason other than to pass the test (Iannone & Simpson, 2011).

In creating these summative assessments there are many question formats teachers can choose from. Included in these options are the conventional multiple choice question, alternative or binary choice, matching, context dependent, and constructed response including short answer or an essay (Haladyna et al., 2002). Each type of question format presents itself with its own strengths and weaknesses as well as different levels of cognitive thinking that it can assess.

Multiple choice items such as multiple choice questions, binary, and matching all lend themselves to most content areas and are generally practical and reliable as they are scored
objectively (Wainer & Thissen, 103). However when students know that an exam is going to include multiple choice items they begin to assume that the content being assessed on the exam is entirely factual and requires little to no critical thinking on their end. This assumption leads students to studying using the “surface approach” (Joughin, 2010, p. 341). Even though these types of test questions are easy to grade and write teachers need to keep in mind a few guidelines as they create these questions. These include: keeping vocabulary appropriate for the grade level of the students, not using trick questions as lower performing students will blame these questions for their bad performance, format questions logically and vertically if applicable, and having three good distractors is better than adding in a fourth bad distractor (Haladyna et al., 2002).

These guidelines are only a few of the many things teachers should keep in mind as they create these assessment questions as the quality of the assessment questions determines the validity of the assessment. In general these types of questions mainly assess students recall knowledge as well as their understanding and application in some cases of the content area. These questions for the most part do not begin to assess higher level thinking on the part of the student.

Context dependent and constructed response questions on the other hand are able to assess higher level thinking skills of the student based upon content knowledge. Context dependent questions in particular give students a scenario, vignette, table, chart, or some other form of a visual followed by several questions to measure their higher level thinking as they problem solve to develop the answer to the questions (Haladyna, 2002). These types of questions help students develop the skills they will someday need in the real world to trouble shoot similar problems in the workforce. Unfortunately constructed response questions require more work on the part of the teacher as they are harder to score objectively as each student will have a unique response to the question (Wainer & Thissen, 1993).
Creating summative exams that combine many of these test question formats allows for the strengths of each type to overcome the weaknesses of the others. As teachers, it is important for us to continuously ask ourselves as we are developing these exams, what am I trying to measure on this test? By asking this question we will be better prepared to determine the types of questions that will best assess the knowledge of our students we are trying to measure.

**Reflection**

While compiling a test for students, teachers need to keep several guidelines in the back of their minds as they choose and develop specific test questions to assess their student’s learning at the end of a unit. This is where the test blueprint (Appendix A) becomes useful as many of the test question formats have been proven to work better with particular cognitive levels of thinking than others. Test questions were developed to address the six levels of Bloom’s Taxonomy shown in the test blueprint in Appendix A using seven different types of assessment items including binary choice, multiple choice, matching, interpretive exercises, completion items, short answers, and essays. These sample test questions are presented in Appendix B of this paper as they together compile a summative unit test for this seventh grade unit on ratios and proportions.

Binary choice questions can be used to assess a student’s ability to remember, understand, and apply. These types of questions do not require higher level thinking as they only have two answers, true or false. I used this type of question to assess my students’ ability to demonstrate remembrance, understanding, and application of ratio and proportion problems. Binary choice items are beneficial in that they reduce grader bias as there is only one correct answer; however they may lead to guessing a correct answer as the student knows they have a
50% chance of guessing the correct answer since there are only two answer choices. When writing binary choice questions it is important to keep in mind that in order for a binary choice question to be “good,” it must be written in a clear and positive manner as to not give any hints towards the correct answer. During formative assessment I will not use many binary choice questions except maybe during oral questioning as I want to hear what the students have to say about what they have learned.

Multiple choice questions can be used for all levels of Bloom’s Taxonomy up to analyze for sure and sometimes even evaluate. In mathematics students love when teachers give multiple choice exams. Although they do not see that teachers provide distractors for questions by using common mistakes students make. Therefore they may try and guess the correct answer without fully reading and understanding the question. For this summative assessment I used multiple choice questions to assess students’ ability to apply their knowledge. For each of the questions they were asked to solve a problem using methods they have been taught. These types of questions are beginning to hit higher level thinking as students have to figure out for themselves what steps they need to take in order to find the solution to the problem. Multiple choice questions are difficult to write in that when creating distractors you need to give plausible answers as you do not want to give an answer that is obviously wrong. An advantage to multiple choice questions is that they are objective and reduce grader bias as they only have one correct answer. I am generally not a huge fan of multiple choice questions however I feel they are important to include on tests since that is what the majority of the state test students take is made up of. During formative assessment I do not use multiple choice questions. Instead I assess students on their ability to solve similar problems on white boards and quizzes. Then when they
get to the test the questions they see that are multiple choice are questions they have solved many times just without possible correct answers being given.

Matching questions are primarily used to assess students’ ability to recall knowledge of facts and vocabulary terms. For this assessment matching was used to assess the student’s recollection of vocabulary words and definitions. In creating matching items it is important to remember to not give any grammatical clues, keep responses short and logically ordered as well as not have too many questions in one set of matching. Additionally, it is beneficial to include one additional response than premise so that students cannot guess the correct answer. Matching is not included in my formative assessment however the ideas that are assessed in this section of matching are included in the KWL charts that I use as formative assessment throughout the unit.

Interpretive exercises can be used to assess comprehension, reasoning skills, and application of the material covered. This type of question begins to hit the higher levels of critical thinking as students are asked to either read a short passage or analyze a table or graph. After they read, understand, apply and/or analyze the exercise they are given several questions to answer based upon the information provided. These types of questions tend to provide students with new material. By using the techniques they have learned in class they should be able to draw appropriate conclusions. These interpretive exercises are similar to the homework assignment I assigned as a formative assessment where students were asked to find the rate of the graph and then interpret what the graph was representing.

Completion items are beneficial in assessing the student’s knowledge of various facts and ideas. For this type of question students are asked to fill in a missing word or words in a sentence to make it true. I have used completion items to assess students’ knowledge of vocabulary,
formulas and application of proportions. These types of questions are easy to construct and generally easy to grade as long as they are written correctly. When writing these types of questions you want to try not to copy sentences directly from the textbook or student’s notes and instead assess the same knowledge using a new sentence. Completion items will be used during formative assessment for warm-ups and exit slips as students will sometimes be asked to complete an idea. These formative assessments will go into greater depths than the completion questions found on the summative assessment will.

Short answer questions are beneficial for the higher levels of Bloom’s Taxonomy such as analyze and evaluate as they ask students to make connections from the unit to answer the question at hand. Short answer questions are perfect for mathematics as you can assess a broad range of knowledge in just one question. Short answer questions are good in that they limit guessing and can be scored objectively as they tend to only have one correct answer. The nice part about short answer questions is that if there is more than one way to find the solution to a problem students are able to choose and use the method that works best for them presenting to the teacher the knowledge they have gained throughout unit. I will be using short answer questions multiple times throughout my formative assessments as they are a perfect fit for mathematics.

Essays are useful in assessing higher levels of critical thinking such as evaluate and create in terms of Bloom’s Taxonomy. Essays are good as they allow students to take a different perspective on the material as some essay questions ask them to use their knowledge to create their own problems and give explanations of how they determined final answers. These types of questions are harder to grade as each student has a variation of the answer and there is a high probability that no two answers will be the same. Therefore these types of questions take ample
amounts of time to grade and have many sources where error may become a factor. However the negatives to this type of problem are far outweighed by the positives in that they show the student’s ability to problem solve, reason, apply, and execute the knowledge they have. These skills are not only beneficial in the classroom but truly begin to prepare students for the real world. I will be using an essay type question during a free write exercise as part of my formative assessment. For this assessment students will be asked to create their own multi-step problem which will help them develop the skills they will need to use as they answer one of the essay questions on their summative assessment.

The combinations of all these summative assessment questions fully cover the eight blueprint points I have deemed important to assess from my test blueprint (Appendix A). Additionally, these eight blue prints cover the standards set forth by the Common Core State Standards for this unit. By using a variety of assessment question formats I am able to reliably assess my students learning of the standards as many of the standards are asked in various formats from matching to multiple choice to essay formatted questions. This variety in assessment type questions deepens my reliability of the content question as I can fully assess what my students do and do not know. If they are unable to answer a binary choice question but can answer the short response question that covers the same main idea then I know I need to rethink my binary choice question as it may not be worded correctly. I can assume this because a short response question requires higher level thinking on the part of the student than a binary choice question does, in general.

After I distribute and grade the summative assessment I will be able to create a chart that will show how many times students got each question wrong. From this chart I will be able to compare what types of questions students missed or misunderstood with the standard it
addresses. If I notice that many students missed a large portion of one standard in particular then I will know I need to reteach this material in another way prior to assessing the students again either in class or before they take their state exam.
References


## Appendix A

### Ratios and Proportions Test Blueprint

<table>
<thead>
<tr>
<th>Proportional Reasoning Unit</th>
<th>Remember</th>
<th>Understand</th>
<th>Apply</th>
<th>Analyze</th>
<th>Evaluate</th>
<th>Create</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ratios</strong></td>
<td>Students will define what it means to have a ratio.</td>
<td>Students will explain the purpose of a rate.</td>
<td>Students will write “real” world ratios.</td>
<td>Given a table, graph, verbal description, or chart students will identify the rate shown.</td>
<td>Students will verify how to use ratio/rate.</td>
<td>Students will create a ratio/rate problem of their own to solve.</td>
<td>33 / 33%</td>
</tr>
<tr>
<td></td>
<td>3/ 3%</td>
<td>2/ 2%</td>
<td>5/ 5%</td>
<td>8/ 8%</td>
<td>10/ 10%</td>
<td>5/ 5%</td>
<td></td>
</tr>
<tr>
<td><strong>Proportions</strong></td>
<td>Students will describe the similarities between creating a ratio and creating a proportion.</td>
<td>Students explain how they create proportions based upon relationships presented.</td>
<td>Students will write “real” world problems that require proportions to be solved.</td>
<td>Students will describe the proportional relationships displayed in tables, graphs, &amp; verbal descriptions.</td>
<td>Students will justify how they used proportions to solve problems.</td>
<td>Students will create their own map scale project using proportions to find model and actual distances.</td>
<td>39/ 39%</td>
</tr>
<tr>
<td></td>
<td>5/ 5%</td>
<td>3/ 3%</td>
<td>5/ 5%</td>
<td>10/ 10%</td>
<td>4/ 4%</td>
<td></td>
<td>12/ 12%</td>
</tr>
<tr>
<td><strong>Applying Percent</strong></td>
<td>Students will recall how to convert between fractions, decimals, and percents.</td>
<td>Students will explain their thought processes when finding percentages with or without a proportion.</td>
<td>Students will demonstrate how they think about using percents in real life in relation to tax, tip, discounts, interest, etc.</td>
<td>Students will use given information to solve for percentages and other missing information.</td>
<td>Students will assess when it is appropriate to use a proportion and when they should use the percent equation to solve problems.</td>
<td>Students will conceptualize their own situations to determine items such as tax, tip, discounts, interest, commission, etc.</td>
<td>28/ 28%</td>
</tr>
<tr>
<td></td>
<td>3/ 3%</td>
<td>5/ 5%</td>
<td>3/ 3%</td>
<td>10/ 10%</td>
<td>2/ 2%</td>
<td>5/ 5%</td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>11/ 11%</td>
<td>10/ 10%</td>
<td>13/ 13%</td>
<td>28/ 28%</td>
<td>16/ 16%</td>
<td>32/ 32%</td>
<td>100/ 100%</td>
</tr>
</tbody>
</table>
7th Grade Ratios and Proportions Unit Test

Name: _____________________________ Date: _____________________ Period: ______

Ratios and Proportions Unit Test

Directions: Read ALL directions before answering each question. Show ALL work! Partial credit will be given for work shown. Good Luck!!

Part I- True/False

Decide whether the following statements are either true or false. If the statement is TRUE write “T” on the line next to the number for that question. If the statement is FALSE write “F” on the line next to the number for that question. (1 point each)

_____ 1. 15% of 89 is 13.35 is an example of a percent statement.

_____ 2. 100 miles in 2.5 hours expressed as a unit rate is 250 miles per hour.

_____ 3. A graph that passes through the point (0,5) is proportional.

_____ 4. One way to determine the tip you need to leave your waitress is to set up a proportion that includes the tip percentage you want to leave and the total amount of your bill.

Part II- Fill in the blank

Complete each statement by filling in the missing vocabulary word, numerical value, or equation. (1 point each)

5. If Jack can travel 196 miles on 8 gallons of gasoline then he can travel 343 miles on x gallons of gasoline. To solve this problem I would use a _____________ to find x.

6. A graph is considered _________________ if it passes through the origin.

7. The formula to find simple interest is I = _________________.

8. The correct way to set up a proportion to solve for tax on an item is:

__________________ = __________________
Part III- Matching

Match the definition in Column A with the term it relates to in Column B. Write the letter of the term on the line next to the number of the definition. Some terms may be used once, more than once, or not at all. (1 point each)

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>_____ 9. Compares two quantities with different units</td>
<td>A. Percent</td>
</tr>
<tr>
<td>_____ 10. Comparison of two numbers by division</td>
<td>B. Percent proportion</td>
</tr>
<tr>
<td>_____ 11. Simplified to have a denominator of 1</td>
<td>C. Rate</td>
</tr>
<tr>
<td>_____ 12. Compares part of a quantity to the whole quantity using a percent</td>
<td>D. Ratio</td>
</tr>
</tbody>
</table>

Part IV- Multiple Choice

Place the letter of the answer that best answers each question on the line next to the question number. (3 points each)

_____ 13. The bill at the restaurant for dinner was $58.97. The waitress did a wonderful job tonight so you leave a generous tip of 19%. How much is your final bill including tip?
   a. $11.20
   b. $70.17
   c. $70.18
   d. $72.17

_____ 14. Write a proportion that could be used to solve for each variable. Then solve.

12 balls in 2 boxes and 78 balls in x boxes

a. \( \frac{12}{2} = \frac{78}{x}; x = 13 \)
b. \( \frac{12}{2} = \frac{78}{x}; x = 12 \)
c. \( \frac{2}{12} = \frac{78}{x}; x = 468 \)
d. \( \frac{12}{2} = \frac{x}{78}; x = 456 \)
Part V- Interpretative

Base your answers to numbers 15-17 on the summary about scale models shown below.

Scale Models

A scale drawing represents something that is too large or too small to be drawn to actual size. A scale model can be used to represent something that is too large or too small for an actual-size model. Some examples of scale drawings are house blue prints and maps. An example of a scale model is a hot wheels car.

The most important factor to consider when making scale drawings or models is scale factor. Your scale factor is a ratio in simplest form that compares the measurements of your scaled model to the actual object. A scale can have different units. For example inches to feet. However to become a scale factor your scale must be converted so that both models use the same units, as a scale factor does not include units.

15. T  F  1 inch to 96 feet is an example of a scale. (1 point)

16. Justify why your answer to #15 is correct. (4 points)

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

17. How are proportions used in scale drawings? (4 points)

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
18. Complete the table of values for the above graph. (5 points)

<table>
<thead>
<tr>
<th>x</th>
<th>y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

19. True or False: The graph shown above is proportional. (1 point)

20. The unit rate for the graph above is ______________. (2 points)

21. What does the unit rate of the above graph represent? (5 points)

________________________________________________________________________
________________________________________________________________________
Part VI- Short Answer

Answer the following questions providing work and written responses where appropriate.

22. Lizzie is at Staples to buy new pencils for school. She sees that they sell a 10 pack of pencils for $4.00 and a 6 pack of pencils for $2.70. Which pack of pencils gives Lizzie the best deal? (8 points)

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

23. The wholesale cost for shirts bought by a sporting goods store is $20 per shirt. The shirts will be marked up 40%.

   a. How much is the profit? $___________ (2 points)

   b. What is the selling price? $___________ (2 points)

   c. Describe how you solved this problem. (4 points)

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
24. Crystal’s mother kept a record of Crystal’s height at different ages. She recorded the information in a table.

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>Height (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (Birth)</td>
<td>19</td>
</tr>
<tr>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>5</td>
<td>42</td>
</tr>
<tr>
<td>10</td>
<td>55</td>
</tr>
<tr>
<td>12</td>
<td>60</td>
</tr>
</tbody>
</table>

Is the relationship between Crystal’s age and her height proportional? Explain your answer below. (6 points)

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

25. Garret went to the store and bought a new iPod touch that costs $189.95. He must pay 8% sales tax on the item when he reaches the register. Explain how you would solve this problem. In your answer be sure to include the final cost of the iPod touch. (8 points)

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

______________________________________________________________________________
Part VII- Extended Response

26. Using the menu options listed below choose one appetizer, one entrée, one side, and one beverage. Then create a problem where you will determine the amount of tax applied to your bill if the tax percentage at the restaurant is 7%. Finally calculate the tip on your meal if you leave your waitress an 18% tip. Show all work! For each step in your calculation write a little explanation of what you are finding. (15 points)

<table>
<thead>
<tr>
<th>Appetizers</th>
<th>Entrees</th>
<th>Sides</th>
<th>Beverages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffalo Wings $10</td>
<td>Eggplant Parmesan $18.50</td>
<td>House Salad $4</td>
<td>Soda $3.50</td>
</tr>
<tr>
<td>Mozzarella Sticks $6</td>
<td>Roasted Chicken $16.25</td>
<td>Cesar Salad $5.20</td>
<td>Lemonade $4.25</td>
</tr>
<tr>
<td>Nachos $8.60</td>
<td>Ribs $22.95</td>
<td>Cup of Soup $4.35</td>
<td>Iced Tea $3.25</td>
</tr>
<tr>
<td></td>
<td>Steak $19.99</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Write the problem as it would be written on a test. Be sure to include your menu item choices, the percentage of tax applied to your bill and tip percentage.

______________________________________________________________________________

______________________________________________________________________________

Work space for calculations: Explanation

Summary- Summarize the answer to your problem based on the work you have shown above.

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________
27. In a well-developed paragraph compare and contrast how you would create and use the percent equation or a proportion to solve the following problem in order to determine who is correct. (15 points)

Michaela and Sydney are determining which size sports drink is the better buy per ounce: a 16 ounce bottle for $1.95 or a 36 ounce bottle for $3.05. Who is correct?

<table>
<thead>
<tr>
<th>Michaela</th>
<th>Sydney</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 ounce bottle: 12.2 cents per ounce</td>
<td>16 ounce bottle: 8.2 cents per ounce</td>
</tr>
<tr>
<td>36 ounce bottle: 8.5 cents per ounce</td>
<td>36 ounce bottle: 11.8 cents per ounce</td>
</tr>
</tbody>
</table>

In your paragraph be sure to include:

- Percent Equation used to solve for unit price of 16 ounce bottle
- Percent Equation used to solve for unit price of 36 ounce bottle
- Proportion used to solve for unit price of 16 ounce bottle
- Proportion used to solve for unit price of 36 ounce bottle
- Unit price for 16 ounce bottle
- Unit price for 32 ounce bottle
- Statement justifying which girl was correct and why
28. What do you feel your grade will be on this test? ______________

Why?
___________________________________________________________________________
___________________________________________________________________________

29. Is there anything I can do to help you do better in math class?
____________________________________________________________________________
____________________________________________________________________________