INTER-QUALIFYING PROJECT

STUDENT TEACHING AT FOREST GROVE MIDDLE SCHOOL

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Abstract

The purpose of this paper is to establish that I have accomplished all five of the Professional Standards for educators. The five Professional Standards are: 1) Plans Curriculum and Instruction, 2) Delivers Effective Instruction, 3) Manages Classroom Climate and Operation, 4) Promotes Equity and 5) Meets Professional Responsibility. This paper provides facts that show I am competent in these five standards, and therefore am qualified as an educator.

Chapter 1: PQP

I first visited the school I will be working at, Forest Grove Middle School, in mid-December. When I walked into the classroom I was presented with a room full of children working in groups and chattering loudly while music played through the computer's speakers. The teacher I will be working with, Mr. Mike True, introduced me to the students and I suddenly had roughly 25 pairs of eyes looking in my direction. One student broke the silence to point out that I "looked like Santa Claus," presumably because of my red scarf and rosy cheeks from the cold outside. It was at that moment that I realized this project will be full of surprises and tough at times, but working with these students will be a learning experience and worth all the work in the end. In order to get myself in the education mindset, I have done research on different aspects of education, such as the Education Reform Act of 1993, the Curriculum Frameworks, and Forest Grove's student profile.

The Education Reform Act is a piece of legislation signed into law in June of 1993 that has helped define the Commonwealth's approach to education over the past twenty years. This act was created by business leaders in the MBAE (Massachusetts Business Alliance for Education) with the goal of remaking the "state's education system to meet the needs of an increasingly knowledge-based economy" [3, 20 Year Anniversary Report]. According to the MBAE, the state needed to set high expectations that were based on a "system of standards, assessment and accountability" [3]. They also believed that more resources should be available to schools and students, and accountability should move from the state to the districts and local schools. Using these ideas, they created an act that had a set of common standards (otherwise known as frameworks) that students were expected to know in each grade. In addition, the

MBAE created the MCAS (Massachusetts Comprehensive Assessment System), which is a test based on these standards and students are required to pass in 10th grade in order to graduate.

The Education Reform Act has improved education in Massachusetts drastically in a variety of ways. Before the Reform Act, children were tested different material depending on what the teacher covered; in other words there was no standardization of what material needed to be covered or what would be taught. This would have a huge negative impact on students who moved often, because the material they learned could be very inconsistent as they moved from one school to the next. Before reform, the state spent 1.3 billion dollars on local education aid, and the state average spending per pupil was 5,296 dollars of which state aid accounted for 30%. The only statewide requirement to earn a diploma was one year of U.S. history and four years of physical education, and the only form of assessment was the MEAP (Massachusetts Education Assessment Program), but it could not assess students against curriculum frameworks because they did not exist. In addition, the MEAP could only compare schools from district to district, which does not allow for much analysis and there were no negative consequences for a student's poor performance on the MEAP. Lastly, before the Reform Act, school committees had a lot of power, as they were the sole authority in making personnel decisions. After the Education Reform Act, a lot of these problems were addressed and solutions were implemented to make the education system in Massachusetts better for the students. One of the main concerns from the MBAE when creating the Reform Act was that the schools were not given enough resources. They solved this by giving the state a bigger school budget. In 2013, the state budgeted 4.2 billion dollars on schools, compared to the previous 1.3 billion. The average per pupil spending also increased to 11,597 dollars, of which state aid accounted for 37%. Most importantly, the act introduced a common framework that allowed standards to be created and the MCAS to be

aligned with these standards [6]. The MCAS allowed for the data on how individual students, classrooms and schools were doing to be collected for the first time. This was huge because it gave teachers a set of curricula they had to teach and gave students a standard to which they had to reach. This meant if a student moved schools, they could be more confident that the material they learn in their new school would be a continuation of the previous material they had learned. Lastly, the role of the school committee was refined, limiting their authority in personnel decisions.

Massachusetts has done a lot to assure that their schools are a priority and their students are meeting the standards the state has set and the investment has paid off. According to the 2014 State Education Performance and Policy Index, Massachusetts is the number one ranked state in NAEP (National Assessment of Educational Progress) performance in the United States. The NAEP is the "largest nationally representative and continuing assessment of what America's students know and can do in various subject areas," [National Center for Education Statistics webpage] including math, reading, science, writing, the arts, civics, economics, geography, U.S. history and technology and engineering literacy. The NAEP serves as a common measurement of learning for all states and provides results such as subject-matter achievement within different populations of students (within all 6th graders, all female students, all Hispanic students, etc.). Another way to compare how much knowledge students have learned besides the NAEP is the Trends in International Mathematics and Science Study (TIMSS). This study "Assesses mathematics and science knowledge and skills of 4th and 8th graders internationally" [National Center for Education Statistics webpage]. While the NAEP can compare student growth on a state to state basis, the TIMSS can compare students on an international basis, giving the

government the ability to see if American students are on the same track as students around the world.

Students' growth can be compared easily within the state of Massachusetts due to the Curriculum Frameworks that were put in place by the Education Reform Act. Curriculum Frameworks are the standards by which the teachers must frame their lesson plans. The Massachusetts Curriculum Framework for Mathematics "builds on the Common Core State Standards for Mathematics. The standards in this Framework are the culmination of an extended, broad-based effort to fulfill the charge issued by the states to create the next generation of pre-kindergarten through grade 12 standards in order to help ensure that all students are college and career ready in mathematics no later than the end of high school," [3, Massachusetts Curriculum Framework for Mathematics]. The area in which I will be teaching is 7th grade mathematics. Within the Massachusetts Curriculum Frameworks, it states that the frameworks for this area should focus on four critical areas of learning: "(1) developing understanding of and applying proportional relationships; (2) developing understanding of operations with rational numbers and working with expressions and linear equations; (3) solving problems involving scale drawings and informal geometric constructions, and working with two- and three-dimensional shapes to solve problems involving area, surface area, and volume; and (4) drawing inferences about populations based on samples" [59]. These four areas include topics such as ratios and proportional relationships, the number system, expressions and equations, geometry, and statistics and probability [60]. Statistics and Probability happen to be my favorite material so I am thrilled to have the opportunity to teach my students this concept.

The Common Core is a relatively new form of standardization. It is the standards by which the curriculum frameworks are based. The Common Core was developed by state education chiefs and governors from 48 states and created "a set of clear college- and career-ready standards for kindergarten through 12th grade in English language arts/literacy and mathematics" [Common Core webpage]. The Common Core has quickly been adopted by 43 states in the U.S. who are now working towards implementing the standards in order to ensure that "students graduating from high school are prepared to take credit bearing introductory courses in two- or four-year college programs or enter the workforce" [Common Core webpage]. I appreciate the Common Core because it is not simply preparing students for college. It is a reality that not all students will continue onto two- or four-year colleges, but instead some will enter the workforce right out of high school. It is comforting to know that the government is acknowledging that fact and has used the Common Core to prepare all students, no matter where they go after high school.

With the addition of the Common Core, schools will need implementation plans in order to successfully convert to the Common Core standards. Forest Grove Middle School is following the plan that the state of Massachusetts has implemented. The state of Massachusetts has provided a variety of resources on the Massachusetts Department of Education webpage in order to help teachers implement the Common Core standards. One of the new resources for 2014 is the PARCC Model Content Framework. These Model Content Frameworks are resources that are meant to be used in alliance with the Common Core State Standards. They are not a replacement to the standards, but instead teachers can use them as a companion and can be used to analyze and build curricula [PARCC webpage]. Forest Grove will use these types of implementation tools that are provided to adjust to the Common Core.

Before I start teaching, it is important to know the types of students I will be working with. If I have an understanding of the students at Forest Grove, I will be able to work with them more effectively, therefore, I created a socio-economic demographic profile for the students at Forest Grove. I found all of this information on the Massachusetts Department of Education webpage.

Total Enrollment: 956
Low Income %: 58.3
SWD (Student with Disability) %: 19.9
ELL (English Language Learner) %: 19.7

African American %: 11.4
Asian %: 5.4
Hispanic %: 27
Native American %: 0
White %: 50.5
Native Hawaiian, Pacific Islander %: 0
Multi-Race, Non-Hispanic %: 5.8

Just to note on some of the information I found, the two highest ethnicities are White and Hispanic. A majority of the students are considered to be low income students and there are a total of 956 students at the school, which only includes 7th and 8th grade. The total enrollment is probably the number that strikes me the most. I thought I went to a big school and my middle school was nowhere near that number, and that was including 6th, 7th and 8th grade. It just goes to show how big of a city Worcester is. Mike True pointed out to me that because the school and Worcester is so big, the student population is very diverse, and I look forward to working with such a diverse group of kids.

Along with a socio-demographic profile, I also found an MCAS profile for the students of Forest Grove. I found a table that created an MCAS profile for Forest Grove on the Massachusetts Department of Education webpage and decided to use that as my MCAS profile because it very accurately depicts all of the information that I would have put into my MCAS profile in an organized manner.

Grade and Subject	Proficient or Higher		Advanced		Proficient		Needs Improvement		Warning/ Failing		Included	CPI	SGP	Included in SGP
	SCHOOL	STATE	SCHOOL	STATE	SCHOOL	STATE	SCHOOL	STATE	SCHOOL	STATE				
GRADE 07 - ENGLISH LANGUAGE ARTS	73	72	10	11	62	61	18	21	9	7	392	87.9	64.0	362
GRADE 07 - MATHEMATICS	49	50	17	17	32	33	22	26	28	24	395	70.8	59.0	364
GRADE 08 - ENGLISH LANGUAGE ARTS	68	79	12	14	56	65	19	14	13	8	505	85.0	57.5	456
GRADE 08 - MATHEMATICS	44	52	15	19	29	33	29	29	27	19	507	69.7	48.0	456
GRADE 08 - SCIENCE AND TECH/ENG	33	42	3	4	30	38	39	41	28	18	505	65.8	N/A	N/A
ALL MIDDLE SCHOOL GRADES - ENGLISH LANGUAGE ARTS	70	74	11	15	59	59	19	19	11	7	897	86.3	60.0	818
ALL MIDDLE SCHOOL GRADES - MATHEMATICS	46	55	16	22	30	33	26	27	28	18	902	70.2	54.0	820
ALL MIDDLE SCHOOL GRADES - SCIENCE AND TECH/ENG	33	45	3	7	30	39	39	39	28	16	505	65.8	N/A	N/A

It is a little concerning to me that less than fifty percent of the 7th grade students at Forest Grove are Proficient or Higher in Mathematics. I realize that the state score is only fifty percent and Forest Grove is therefore, only one point below that, but it is still a concerning statistic to look at. I hope that by bringing in a new perspective, I am able to, in some way, help these students understand the material better and help them succeed on their MCAS.

In the socio-economic profile, I listed some statistics such as SWD and ELL, but what exactly classifies someone as ELL? According to the ASCD (Association for Supervision and Curriculum Development) an English Language Learner is "a student whose home language is not English and who has not yet acquired proficiency in English," but I felt that this definition did not cover the whole idea. Further research led me to an education glossary, which defined

what ELL meant in lengthier terms. An English Language Learner student is a student who is "unable to communicate fluently or learn effectively in English." They usually come from non-English speaking homes, and often need additional instruction in their courses. According to the Glossary of Education Reform, students will complete a formal assessment of their English literacy, and if the "results indicate that the students will struggle in regular academic courses, they may be enrolled in either dual-language courses or English as a second language (ESL) programs." These ESL programs are also called Sheltered English Instruction (SEI). Most ELL students will be placed in SEI classes where they can be given the special attention they require. Sheltered English Instruction provides support for ELL students and not only help with English, but also mathematics, science, and history. There are different types of SEI classes depending on what language background the student is from, which makes these programs very helpful for all types of ELL students.

When I begin teaching, one of my main goals is to not only have the students learn, but to also have fun while they learn. This is a lot easier said than done. I have been looking up creative ways to teach the material and I have been trying to think back to when I was in middle and early high school and the teaching techniques that I found the most effective and enjoyable as a student. My hope is to connect with the students on a level where they like me as a person, but also respect me as an authority figure. However, I realize that this balance can be hard to find. I am so excited, but nervous to start teaching at Forest Grove and cannot wait to see what the experience has in store for me.

Chapter 2: Professional Standard #1

In the same way that doctors live by the Hippocratic Oath, educators live by the Professional Standards of teaching. There exist five Professional Standards, each covering a different aspect of education that teachers use to be the best educators they can be. These Professional Standards include: 1) Plans Curriculum and Instruction; 2) Delivers Effective Instruction; 3) Manages Classroom Climate and Operation; 4) Promotes Equity; and finally, 5) Meets Professional Responsibility [PST Matrix]. The greater portion of this paper will be spent demonstrating how I have met these standards during my teaching experience.

As stated above, the first Professional Standard is to Plan Curriculum and Instruction. This includes drawing upon content standards of relevant frameworks to plan lessons, utilizing formal and informal assessments to identify teaching strategies that are appropriate for the students, and identifying prerequisite skills and vocabulary necessary for lessons [PST Matrix, 2]. The Massachusetts 7th grade curriculum is focused on four areas which are deemed critical. These four areas are as follows: "1) developing understanding of and applying proportional relationships; 2) developing understanding of operations with rational numbers and working with expressions and linear equations; 3) solving problems involving scale drawings and informal geometric constructions, and working with two- and three-dimensional shapes to solve problems involving area, surface area, and volume; and 4) drawing inferences about populations based on samples," [PST Matrix, 3]. Within each of these four general areas, the curriculum is then divided into the specific topics that should be covered throughout the year. I will go through each of these topics and point directly to examples of the standards that I covered in my lessons; the actual lesson plans are referenced in the Appendix.

Standard 7.1RP: Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units [Massachusetts Curriculum Frameworks, 61]. While this standard was covered in class through opening exercises, the main way that I reviewed this material was through an online interactive video, from pbslearningmedia.org. The video involved the students watching examples of different types of ratios being explained, and then they would take part in a game called "Dunk Tank," which included students picking targets that each had a question tied to it. The number of times it took the students to get the question right determined the amount of points that they would earn. In between every two or three questions, there would be another video that would explain another aspect of ratios and proportions. This interactive lesson plan was entertaining, as well as a great review for the students, and even those who were not as into the math paid attention for the funny videos and the chance to pick which color target would be clicked on next. When it was time to answer a question I would have a volunteer read the question, and take a poll as to who thought which answer was the correct one. In most cases, the students were correct, but in the case that some people were not correct, we would talk through the question as a class and explain why the right answer was correct. The link to the video is in the appendix, along with a list of standards the video covers, one of them being 7.1RP and 7.3RP.

Standard 7.3RP: Use proportional relationships to solve multi-step ratio and percent problems [Massachusetts Curriculum Frameworks, 61]. This standard was covered in the interactive video from pbslearningmedia.org, however I also went over the material involved with Standard 7.3RP in other activities. In preparation for the standardized tests that the students take, I created a PARCC Example Packet. We worked on these questions in class in groups, and then went over them as a class. The particular question involved looking at and interpreting a

table of Field Trip Choices, then using the tables to create ratios, calculating percents from these ratios, and finally using results to answer the original question. The question is available to review in the Appendix.

Standard 7.1NS: Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram [Massachusetts Curriculum Frameworks, 61]. Representing rational numbers on a number line was covered in a couple of different ways through my lessons. First, a number line example was also a sample PARCC question in the packet I mentioned in the previous paragraph. The question asks the students to look at a number line and a point given to explain whether an assumption made by a fictional student makes sense, and explain why it does or does not. This problem uses a number line to make students visualize numbers and how they relate to each other. Another way in which I used Standard 7.1NS in my curriculum was by drawing a number line to depict adding and subtracting numbers. I used this in particular when students struggled with adding and subtracting positive and negative numbers. By drawing a number line, I could show them that they were either adding or subtracting distance from their current location. When I privately tutored one of my students, I would try to create visuals as much as possible to show her what was happening and why the math turned out the way it did. Showing why a negative minus a positive was also a negative was a lot easier to explain and understand when using a number line. During class, as part of the warm-up problems, I would often draw a ruler or a number line on the board and have students come up and place numbers on the number line in order to reinforce where fractions laid on the number line compared to other fractions. This allowed students to visualize how fractions were related to one another, as

well as how close they were to being a whole number. This material was covered on a couple of quizzes that I created throughout the semester.

Standard 7.3EE: Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies [Massachusetts Curriculum Frameworks, 62]. Real-life problems were a huge focus for my mentor, Mr. True, and I. We realized that no matter where a student goes in life, they will need math. Whether they go to college and become a math major, or pursue a career as a carpenter, math is a necessity. Even a trip to the store requires math, in order to make sure proper change was given or to get the best sale. Almost every day, the warm-up activities included a word problem. The ability to complete word problems was also a large focus of the quizzes given in class. In both of the standardized test packets I made, the focus was entirely on word problems, and answering them in a form that makes sense. After every problem we went over as a class, I would be sure to ask what the units were, as I found that a huge indicator of whether the students understood the answer was in their ability to answer the question in a full sentence with the correct form and units. In the game "ZAP", which I found online and adapted for the students, a good portion of the questions were word problems that had to be answered in the correct form to get points. Both of the packets, all quizzes, and some visuals of ZAP can be found in the Appendix.

Standard 7.4EE: Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities [Massachusetts Curriculum Frameworks, 62]. Once again, the standardized test

packets cover this standard. I also spent time in class explaining that variables simply stood for some unknown amount. A very popular exercise that we would do in class would be to write down a scenario and ask the students to turn it into an equation. In one class exercise, students would go around to different stations and solve, in their group, the problem at each station. One station had a word problem that the students had to turn into an algebraic equation, and solve. We also discussed when it would be appropriate for equations to have inequalities versus equal signs. Examples of these types of problems are provided in the Appendix.

Standard 7.3G: Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids [Massachusetts Curriculum Frameworks, 62]. When learning about surface area and volume of three-dimensional figures, the first thing I explained to the students was that a 3D figure was made up of multiple 2D shapes. We went over multiple different prisms and broke them down. Cylinders, in particular, were confusing for the students. It was hard for them to visualize that a cylinder was made of two circles and a rectangle. In order to show them this, I took a piece of paper and rolled it up, showing the students that they were indeed looking at a cylinder. They agreed that there would be a circle on the top, and a circle on the bottom. Then, I unrolled the paper, to show that a rectangle was the missing piece of the 3D figure. For every 3D figure problem we did, the first step would be to break down the shape, list and draw which 2D shapes made up the figure, and then proceed to solve the problem. I also made sure that they used the correct labels for 3D figures and explained why when finding the volume the units are cubed and why surface area was answered in units squared. We demonstrated this by drawing cubes inside the 3D figures for volume, and counting squares for surface area.

Standard 7.5G: Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and use them to solve simple equations for an unknown angle in a figure [Massachusetts Curriculum Frameworks, 62]. Since this is a more straight-forward concept than some of the other standards covered, most of the work the students did for this standard involved problems that we went over as a class, worksheets, and review of the material on quizzes. There were also questions dedicated to this standard in ZAP. I would create a series of connected angles and ask students to find the missing angle measure or measures. They also did problems that involved solving for measures using the fact that triangles measures always added up to 180 degrees. There are examples of these problems and worksheets in the Appendix.

Standard 7.6G: Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms [Massachusetts Curriculum Frameworks, 63]. As I mentioned earlier, I was very focused on real-world problems. In terms of this standard, I created a lot of problems related to painting walls, putting up fences, putting down flooring, or creating gardens. Since the class I was teaching, Numeracy, was the students' second math class of the day, it was built as more of a review of their primary math class's material. Therefore, we also spent time going over homework problems and book work that existed in their primary math class textbook. This meant we went over various real-world problems that the students struggled with; one in particular that comes to mind is finding the volume of a water tower.

Standard 7.5S: Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around ½ indicates an

event that is neither unlikely nor likely, and a probability near 1 indicates a likely event [Massachusetts Curriculum Frameworks, 63]. As an Actuarial Math major, this was one of my favorite standards to cover with the students. I explained the basics of probability and how every probability has to be between 0 and 1, as well as the fact that if something has a probability of 0 it will never happen, but if it has a probability of 1 it will always happen. I also explained that the chance of it being 0 to 1 is the decimal format, and that those decimals can be changed to percent chances. In other words, a probability of 1 equals a 100 percent chance. We did exercises such as flipping a coin, and choosing cards from a deck. They also completed simple word problems that I made, which involved choosing cookies from a bag, or marbles from a hat. As with the rest of the standards, there were ZAP questions that involved computing basic probabilities.

Standard 7.8SP: Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation [Massachusetts Curriculum Frameworks, 64]. The students also computed more complicated probabilities. For example, in order to make the more difficult probabilities more entertaining for the students, I did a mock game of blackjack. The students liked seeing the cards up on the board, and that way they could also visualize the probabilities they were computing. Another form of probability problems that the students did were spinning spinners and rolling die. For these types of problems, they mainly used the tree diagrams so that they could visualize all the possible outcomes.

Besides creating a curriculum and lesson plans that are based on and follow the Massachusetts standards, the first Professional Standard requires that teachers "draw on results of formal and informal assessments as well as knowledge of human development to identify teaching strategies and learning activities appropriate to the specific discipline, age, level of English language proficiency, and range of cognitive levels being taught." I accomplished this

task in a variety of ways throughout my time spent teaching. As mentioned earlier, the class that I taught was more of a review for students who were struggling with math than it was its own course. Therefore, I spent a good portion of my time looking at what the students were struggling with most, and how I could improve their ability to learn those math skills. While I used the morning exercises we did each day as an informal assessment, the weekly quizzes the students took were the assessment that I really relied on. I found that in class, students could do the work much more easily. Whether that was due to less pressure, more help from peers and the teachers (Mr. True, myself and the teacher aid), or the fact that we went over the work together, I am not sure. However, I do know that when it came to quizzes I had a better grasp of the material that students were clearly not yet comfortable with, and therefore I knew what I had to focus on in the future. Sometimes, I would have the students write at the top of their paper how they thought they did, or how easy they felt the quiz was. This was also a useful indicator to see how the students thought they were doing, compared with how they actually did. In a couple of my classes, there was a very wide range of ability, so it was difficult at times to decide whether I should move on and leave some students behind, or go more slowly and bore the students who were more advanced. I had to create lesson plans and activities that the struggling kids could follow and pay attention to, but also not bore the students who already knew what they were doing. I tried to create games and activities that had varying levels of difficulty, so the students who knew they were advanced could pick the more difficult problems, while the kids who were struggling could still get answers correct and feel good about themselves. For some quizzes and tests, I analyzed the quizzes for which questions had the most incorrect answers, and would use those results to start off the next day's beginning exercise. That way I was re-enforcing material

that I knew most of the students did not know how to do, and even the advanced students could benefit from the review.

Another aspect of the first Professional Standard is to "Identify appropriate reading materials, other resources, and writing activities for promoting further learning by the full range of students within the classroom." It is important to remember that math is not all about computing. Comprehending the questions that are being asked, and being able to pick out information that is pertinent is half the battle; this is why word problems are just as important as the basic computational exercises. One way that I met this portion of the first Professional Standard was by going over questions from other math classes' textbooks. A second textbook was a good resource of word problems and more complex exercises. I also wrote word problems that required the students to find what information was important, and use that information to solve the problem. Lastly, on a couple of different occasions, the students were responsible for writing their own math questions. In the game we played, ZAP, it became difficult for me to continuously keep coming up with new math problems. I took this opportunity to let the students work on creating their own problems, and explain to me how they solved them. I felt that this was a successful strategy because it allowed me to see what questions the students thought were easy, do-able and difficult. It also gave the students a chance to be creative and explain to me what they understood through their answers.

"Identifies prerequisite skills, concepts, and vocabulary needed for the learning activities," is just another one of the many pieces necessary to achieve the first Professional Standard of education. The best example of how I successfully completed the above is through our work on 3D prisms. First, the class went over each of the types of prisms. We broke them down into the simpler two-dimensional figures that made up the prisms. We went over the

prerequisite skills needed to compute surface area, and the vocabulary words used when working with those types of problems. Some of the vocabulary we discussed was area, surface area, volume, edges, sides, prism, two-dimensional and how it is different from three-dimensional. By breaking down the prisms into a simpler form, we were able to use prerequisite skills of computing area to complete a more complicated task of finding total surface area.

The first Professional Standard is based on Planning Curriculum and Instruction, so it makes sense that, "Plans lessons with clear objectives and relevant measurable outcomes," is on the list of criterion. I showed competence in this area by creating agendas that outlined the plan for the day. I would also tell the students what we would be focusing on that day and tell them that by the end of the class they should be able to complete a certain task. For example, in one activity, I had students measure shapes that I had cut out, and compute areas using the information they collected. The objective of that lesson was to get students comfortable with using rulers to measure objects, and also to be able to round the measurements they got to the nearest half-inch. I collected their work, and compared their results to my answer sheet. By collecting their work I had measureable outcomes of how well the practice helped them. A lot of the students struggled with measuring, and rounding numbers, so this activity was aimed at that weakness.

One of the last few sections involved with the first Professional Standard is to "draw on resources from colleagues, families, and the community to enhance learning." I certainly gained resources from other educators working at Forest Grove. I observed a couple of other classes to see how they taught and managed their classrooms. I tried to mimic some of their teaching techniques, and how they interacted with their students, but also tried to create my own style at the same time. I learned to be organized and have a plan of action each day in order to keep the

students on task. But at the same time I learned that having fun with the students and treating them with respect was the key to getting respect back. Other educators showed me examples of the type of work they were doing with their students, and I used what the students were learning in their other classes when planning my lessons. Another great resource was the other student teacher working at Forest Grove. We would talk about what type of teaching techniques we used, and insight into what the students liked and didn't like to create a better environment for learning. Private tutoring was also a huge insight into what I could do to help my students. Not only was the one-on-one time a great help for the student, but she also helped me see what the students were learning in their other math class, and when the quizzes were too difficult or easy. The resources I gained from tutoring the student were not physical activities or lesson plan ideas, but more of a way to relate to my students and create a fun atmosphere that also encouraged learning.

"Incorporates appropriate technology and media in lesson planning," along with "Uses information in Individualized Education Programs (IEPs) to plan strategies for integrating students with disabilities into general education classrooms," are the last two parts of the first Professional Standard for educators. I upheld these standards by using the computer, as well as the overhead projector and music to ensure students received multiple forms of stimuli. The computer was used to play learning games, such as Jeopardy and the PBS learning game/video mentioned earlier. The overhead projector was incorporated into the students instruction when they went over graphing, and was also used to display problems so that all students could see the problems that they were given. I would display a problem set on the overhead, which was on one side of the classroom, as well as the smart board, on the other side of the classroom, so that all students could see without needing to move, and therefore disrupting other students, and without

needing to strain their eyes. The music was a technique suggested by my mentor, Mr. True. By playing music that the students liked, they would often sit quietly and do their work, and it would even help them focus on what they were doing. When sitting in silence, the distraction of talking to their neighbors presented itself, but when I told the students that if they were quiet, I would put music on, they would do their work in order to keep the music playing.

I did not actually have much experience with the IEP standard. We did not have students who had any serious disabilities and, therefore, there was not much of a need to create exceptions to my lesson plans. I was very fortunate in that the class I was assigned to had a teacher aid, who would help students who had slight learning disabilities. However, I was understanding of the few students who did have learning disabilities. Some students were allowed to use calculators on quizzes that other students could not, and students were given more time to work on quizzes when they needed it. For students who really struggled, I would often grade their work out of the work they did instead of the total number of questions. For example, if a quiz was 20 questions, and a student with a learning disability only did ten of the questions, I would grade them out of the ten questions they did. That way, students would not feel isolated by being given a separate quiz from the other students, but they were given the opportunity to do just as well as the other students if they were trying to succeed.

Chapter 3: Professional Standard #2

The second Professional Standard is, "Delivers effective instruction." Teaching effectively is the purpose of being an educator. Without effective instruction, students will lose focus, not know what to do, and ultimately not learn any material. The key to delivering effective

instruction is communication, namely communication regarding what the students are going to learn, and how they are going to learn it.

The first thing that needs to be communicated to the students is the expectations that they need to meet when beginning the lesson. If high standards are set at the beginning of the lesson, then they will strive to meet those standards. This is done through four steps. The first step is to make any and all learning objectives clear to the students. I did this by creating an agenda and writing it on the board. Before class began, we would go over the agenda together so that the students knew what they were expected to do for that day's class. After the learning objectives have been made obvious to the students, the actual delivery of the material must be understandable. This means speaking clearly, and writing neatly, is extremely important. If students could not read my writing, or hear my voice, how were they expected to learn the material? My writing was always very clear; the students would tell me regularly my writing was neat. I know that some of the students had problems seeing the board, so I made sure to write big and keep the board uncluttered. I would also write the topic of the day at the top of the board, so the students were aware of the topic we were covering. I wrote instructions clearly on quizzes and worksheets, and I also made sure to read out any instructions aloud, as well as repeat the instructions multiple times. I told the students to let me know if I was not being clear, or speaking loud enough, as I know that my voice can be quiet, even when I think that I am speaking loudly. There was also an air-conditioner/heating unit in the back of the room that was difficult to talk over. I knew that speaking quietly was my weakness, so I tried to be extra clear in my writing, speak loudly, and make sure the students felt comfortable telling me when they could not hear what I had said. Another tactic I frequently used to make sure that I was communicating objectives and instructions clearly was to have a student repeat back my

instructions to the whole class, or to students who had been absent the previous day. That way, I made sure that I had explained everything properly, and also let the students explain it to their peers in a way that they could maybe understand better.

The third step of communicating effectively is to "use engaging ways to begin a new unit of study or lesson." I felt like this was one of my strengths when it came to student teaching. Mr. True frequently told me that my lesson plans and activities were creative and engaging for the students. When we worked on area and perimeter, I made an activity where I cut out decorated shapes that the students measured. I made shapes and objects that I thought the students would be interested in. For example, a lot of my students loved basketball, and an easy way to get them engaged with that activity was to draw a basketball cut out that they could measure and use those measurements to calculate area and perimeter. When we started our unit on probability, I brought in cards so the students could look at a physical example as well as pick cards out of the deck. One thing I noticed is that pretty much every student loved being able to do something, even if it was simply holding the deck of cards for me, or putting them up on the board using a magnet. The students loved to be involved in any way, which made it very easy to get them engaged in what they were learning. I kept students engaged throughout the semester by letting them write their answers on the board, talk through their solutions, and by coming up with their own questions for the other students to answer.

The last step in proper communication of standards is to "build on student's prior knowledge and experience," meaning that I used the students' previous teachings to build on what I was teaching them. When the students were learning about absolute value, I used previous knowledge of number lines to demonstrate what an absolute value represented. When we started our unit on volume and surface area, the students' experience with two-dimensional shapes was

extremely important in understanding a three-dimensional prism and how it was made of multiple 2D shapes. We also used previous knowledge of tactics such as "stay-change flip" to solve multi-step word problems with fractions, as well as basic knowledge of algebra to set up equations from given information in word problems.

Another criteria in delivering effective instruction is to "employ a variety of content-based and content-oriented teaching techniques," from direct instruction to discussions, problem-solving challenges, and cooperative learning. An important thing that students need to realize is that learning how to think is just as important as being able to do basic math problems. Even if a student is not entirely sure how to do a problem, if they can think effectively, they can figure out how to do a problem. Therefore, students who are not as naturally gifted at math can do as well if not better than students who are naturally gifted if they can learn to think and problem solve. I tried to give students the opportunity to work on their problem-solving skills, even if it didn't involve direct math applications. One way we did this was by letting the students work on Ken-Ken puzzles in class. Ken-Ken puzzles were a great way to get kids to start thinking before class, and they also got to go up to the board and walk through their solutions with the other students. We also gave the students problem-solving and critical-thinking problems for homework, asking them to try to figure out the answer without asking for help from their parents/guardians, and then asking if their parents/guardians could figure it out as well. The students liked being given non-math problems, but they were still learning critical-thinking skills. Another way in which I employed different teaching techniques was by going over an example of a problem I wanted done, and then having students do the rest themselves, after showing them how I wanted the problem done. They also worked in groups, and pairs, in order to learn from each other and so I was not talking at them the whole time they were working.

Asking questions to encourage thinking is a great teaching tactic. Whenever we went over the warm-up exercises, I would make sure to ask my students, "Does this answer make sense?" This was especially effective when going over percentages. If there was a word problem where an item was on sale for 30% off, and I asked for the sale price, the sale price should be less than the original price. When we first started going over percentages, this concept was difficult for some of the students, so it was important for me to question their answers, and use those questions to lead them to the right way of thinking. Another way in which I would use questioning to stimulate thinking was by always asking what the correct label would be when we did area, perimeter, volume and surface area problems. By asking for the correct label, the students needed to think about what they were calculating, and which calculations needed which labels. For example, if a problem was to find the surface area, the answer would need to be in units squared, whereas if the problem was to calculate volume, the answer would need to be in units cubed. Ensuring the students used the proper label made them more aware of what it was they were finding, which in turn made them think more about the different types of labels.

Communicating high standards when completing the lesson is the next part of the second Professional Standard. While clear instruction before the lesson, and during the lesson, is important, creating high standards for after the lesson is over is as important. Assigning homework or practice helps further student learning. My favorite homework assignment I gave to my students was when I told them that if they wanted to keep playing the game ZAP, which I developed, they needed to create their own questions and show their work. They then brought the questions they came up with into class and I used these questions as ZAP cards. This was my favorite homework assignment because, first of all, it allowed students to practice any material that we were covering at the time, along with any material we had previously covered that they

were uncomfortable with. Secondly, I had them rate whether they thought they were easy, medium, or hard questions. When the students rated the questions, I could see which material they considered more difficult, and what material they were confident in. The assignment gave students the opportunity to be creative, and allowed them to challenge their peers. Although the assignment did give them math practice, it also taught them that creating the game required a lot of time. I asked them to come up with three questions, and when they came in with their questions there were multiple comments and queries about how much time I put into creating the game. It was refreshing to see that they recognized the time and effort that went into creating the game by completing the assignment.

Timely feedback is also essential in effective instruction. If the students do not get their work and quizzes back for weeks, or at all, they will have no idea of how they are doing and more importantly, how they can improve. Therefore, "providing regular and frequent feedback to students on their progress," is part of the second Professional Standard. When I was a student, not getting quizzes and tests back was always a personal pet peeve of mine, so I was very aware of this particular problem when I taught. I always graded the quizzes that students passed in immediately, and had grades back to the students within two days of them taking it. I would go around to each student and let them know how they did on their quiz, and I also did a small analysis on my quizzes, figuring out which problems the students needed the most help with. After the quizzes were graded, I would go over problem types that needed work, and make sure to include those types of problems on the next quiz to ensure the students were improving on their problem areas.

The final communicative key to delivering effective instruction is to "communicate high standards and expectations when evaluating student learning." This is done by accurately

measuring student achievement and progress through a variety of assessments. A good professional then uses the information collected from the assessments to plan further lessons. There is no one way to accurately assess a student's abilities. Some students are not good test takers, this does not mean that they do not know the material. While formal quizzes were my main form of assessment, I also assessed their abilities in day-to-day work. I liked to create small competitions within the class, so that students who were not interested in formal assessment still had a chance to show that they could do the work. These competitions included Jeopardy, who created the best questions for ZAP, and even who was the best behaved students when doing an activity. The students were not only being assessed on their ability to do math, but also their ability to treat their peers, and me, with respect. When doing activities, I would sometimes bring in rewards for the students, and I would often give those rewards not just to those who were succeeding mathematically, but also displayed outstanding behavior. I wanted to teach my students that being attentive, trying to do their work, and treating people with respect is as important as being able to find the solution to a problem.

Chapter 4: Professional Standard #3

The third of the five Professional Standards is about managing classroom climate and operation. The main goal of this standard is to, as an educator, create an environment for the students where everyone can learn effectively. This means that the students should feel safe, respected, encouraged to learn, or ask questions when necessary. I created an environment that is conducive to learning by frequently asking if anyone had any questions. I always wanted students to feel like they could ask questions and if they were confused, let them know it was OK to be confused. If I asked the class if they followed what I was saying, and one student raised

their hand asking me to clarify, students would sometimes make a comment about the one student not getting it. I would always explain that it is OK to not get it, and that we could go over the subject as many times as necessary. I wanted to let the students know that everyone needs help sometimes, and that if one student needs help one time, another student might need help another time, and it is not OK to make a comment about a student not understanding the material right away.

Another way in which I tried to create a conducive learning environment was through hands-on learning. I let the students come up with their own questions, come up to the board and explain their solutions, and use alternate methods to come up with solutions to problems. Hands-on learning leads into the next portion of managing the classroom climate, which is to "create a physical environment appropriate to a range of learning activities." I interpret this as making sure that students can see the problems they are being asked to do, read the notes and solution explanations that are being written on the board, and being able to work with people close to them effectively when instructed to. When students needed to write down homework problems, or notes, I made sure to put two versions of the notes up, one version was always displayed on the smart board on one side of the room, the other version would be projected on the other side of the room. Students were encouraged to let me know if they could not see, and could move around the room so that they were sitting in a location that was better for them. When writing on the board, I always tried to write large enough for all students to see, even those in the back. I used only dark-colored markers so that the writing could be easily seen as well. Lastly, I often moved desks into groups so that students could work together effectively and were already in a good physical position to work with each other.

The next aspect of managing classroom climate and operation involves the behavioral portion of teaching. In order to maintain an environment conducive to learning, the educator must "maintain appropriate standards of behavior, respect, and safety." In general, I felt that my students respected me, and one another, incredibly well. There were a few instances in which inappropriate comments were made, not towards anyone in particular, and I had to tell the student, and the entire class, that inappropriate comments were not acceptable. However, I did this in a respectful way, which was not overly harsh. I simply said that comments like that shouldn't be made, and told the student to stop. There were other instances in which students began to be rude to one another, and a student had to be sent out of the room, but that was usually the end of the matter. Usually, a simple, "let's not do that," was enough to get the students to behave properly, but I believe I was exceptionally blessed with a good group of students. I think a large part of the students respecting me, was that I respected them. I treated them as responsible young adults, provided they acted as such. But I also understood when their behavior was not perfect because I tried to think back to when I was in middle school, and realized all the other things that could be going on in these students' lives that I was unaware of.

Creating a routine is a large portion of keeping the students focused and attentive. If the students know what they need to do when they come in the classroom, and know what is going to happen for the day, they will be a lot more calm and already in a learning state of mind. This is why I created an Agenda and wrote it on the board. There was also a routine of coming into the classroom, and silently, or almost silently, starting the problems that would be written on the board. Most of the time, I gave the students a couple of minutes to settle in and start working. After a couple of minutes I would check in to see where they were and how much time the majority of the class felt they needed to finish the problems. I would then set a new time, and

once that time came we would start reviewing the problem. Every once in a while, I would let the students have a little fun and we would spend a minute or two with a small joke or pun, and then dive into what we would be doing for the day. I found the pun to be a very great use of time because it was a nice break from the work they had been doing and was a good way to transition to a new activity. The students would do work, have some fun, then go back into working on something new.

Chapter 5: Professional Standard #4

Promoting equity is the fourth Professional Standard. This is a standard that I find particularly important to being a successful educator. The next most important thing to making sure that students are learning the material is to make sure that the students understand that even if they are not natural learners, they can still be successful in life, and that everyone can achieve. Effort is the key to achievement, and I wanted my students to be aware of that. I used my personal experiences to teach them this. I told them about going to college, and how my classes were hard and that there were people smarter than me in my classes and I needed to try hard to do as well as them. I told them about my actuarial exams, and that if I wanted to get through my practice manual I needed to read 13 pages of it a day. I also told them that if I pass these tests, which are extremely hard to pass, that I would get paid more and be rewarded for it. The students liked to hear about my exams, and how they required a lot of hard work, regardless of how good a person is at math.

More importantly, I encouraged all of my students to try. I had a couple of students who would do very little in class, and every day I would ask them to just do their best. I would push them to answer questions and told them that all I am looking for is to see that they are trying to

get something done. There were also students who struggled with tests and struggled to finish quizzes on time, but would come up to me at the end and ask if they could finish their test later because they ran out of time. I told those students that as long as they were trying they would do fine. I had a couple of classes that struggled a lot, and would grade their quizzes based on effort. This showed the students that when they tried to answer questions, they could do just as well as the students who were gifted, but lacked determination.

It can sometimes be difficult to put personal thoughts on students aside. When a student refuses to do any work, it is easy to say, "Forget them," and let them goof off all class. However, that is not the right thing to do as an educator. When it came to students like this, I tried to find activities and lesson plans that would get them interested. Even if it was something as simple as having a student pick what color target we would click on in "Dunk Tank" I wanted to encourage these students to raise their hand, or answer a question, and I would praise them when they did so, even if it was as infrequently as once every two weeks.

There were four classes that I taught in my time at Forest Grove Middle School. One of these classes in particular was a challenge. They were clearly the most diverse, in skill level, and in personal background and home life. This class required more attention than the other classes I taught. In order to get and keep them interested, they required much more personal attention, as well as repetition in their lessons, so this is what I tried to give them. I interacted with the students one on one a lot more often, walking around the class and answering questions during the warm-up exercises. I also slowed down the activities for them, taking multiple days to do a lesson that other classes did in one day, because otherwise the concept would go over their heads. I ended up giving them more time on quizzes and assignments, and would sometimes give them an easier version of a quiz than I gave the other classes, mainly because I knew they would

get frustrated and lose attention with the more difficult quiz. I did not make these students feel inferior for not grasping the material as quickly, but I made adjustments that I felt were necessary to keep them interested and learning as a class.

The last way to promote equity within the classroom is to "help students understand American civic culture, its underlying ideals, founding political principles and political institutions, and to see themselves as members of a local, state, national and international civic community." I took a more subtle approach to instill this in my students. I started off by letting my students have a say in what we did in the classroom. I would often take polls, given that both options required doing work, to see what the students would rather do. They actively took part in what happened in the classroom and how they were taught. If they did not like a certain activity, or wanted to try to explain how to do a problem their own way, I was all for it and all ears. By letting the students take part in what happened in the classroom, I was letting them know that their opinions mattered and they were a part of a small community, our classroom.

Chapter 6: Professional Standard #5

The last of the five Professional Standards is to meet professional responsibilities. This means I needed to be aware that I was, in fact, for one of the first times in my life, the adult in the situation. I had legal and moral responsibilities to my students, and if I did not meet these responsibilities, it could have a serious negative affect on my students' lives. This type of situation became the most real to me when I noticed a student had scars up and down her arms. I did not know for sure how old these cuts were, if it was something that had already been dealt with, or if I was the first person in this student's life to have noticed. I was not entirely sure what to do. I knew not to confront her in class about it, that much was obvious. Luckily, this particular

class had a teacher aid who I felt could handle the situation better than I would know how. After class was over, I took the teacher aid aside and told her that I had noticed cuts on the student's arm. She spoke with the student and took control of the situation the next day. While I had no idea of what I should do, I know I did what I felt was right and I know I had a moral responsibility to mention this to someone who would know how to handle the situation.

An educator's primary role is to, as the name states, educate their students, but there is so much more to the job than simply to pass information from one mind to another's. An educator is also responsible for inspiring their students, to get them involved and enthusiastic about learning. I love math, I always have, and there was nothing better than feeling like my students were also enjoying the work we did, especially when students who normally were not enthusiastic showed interest. I told students about what my job will be like and how it will affect the world and people in it. In order to get my students excited about math, I would try to tell them how math can be used and applied to all sorts of things that they enjoy and may not think involves math. If a student liked baking, I would tell them how you need to know measurements and conversions to bake. For students who loved sports, I would tell them how computing statistics and analysis for sports fantasy leagues was all based on mathematics. I would try anything to get the students to enjoy math class, even if it was something as simple as telling a math joke or playing a card game and computing the probability of winning. My goal as a student teacher was to get the students to think math was a little more exciting than they did before coming into the class.

Collaborating with colleagues was a huge part of the start of my student teaching project. I observed a couple of different classes, spoke and worked with other student teachers and previous student teachers, and got advice from previous educators as well. The first class I observed was Mr. True's class. His teaching technique is very laid back and he is very up front

with his students, but he is also energizing at the same time. He is definitely good at projecting, and that makes it easier for the students to pay attention and hear what he is saying. I liked how laid back and honest he was with his students, but I did not think I could be loud enough to teach quite the way he teaches. In the second class I observed, the teacher was a lot different. She seemed to have less control of her students, and they did not seem to respect her as much, for what reason I do not know. When I was observing, even though I was sitting quietly, I felt as if I was a distraction to the class. She had them work in groups a lot, which I did not think worked very well because it gave the students much more freedom than they already had. I did not think her teaching style would suit me very well, especially because she also had a louder speaking voice, and therefore could quiet down the students when they became too rowdy. The third classroom I observed in was, once again, entirely different. The class was very structured, and very quiet. The teacher did not need to raise his voice at all because the students were all so well-behaved. The students all did their work quietly and the teacher went through an organized lesson plan based on the smart board. When there was extra time he would let the students start on their homework. I appreciated how respectful and quiet the students were, but I had the feeling they were a little scared of their teacher, and I did not want my students to be scared of me. I decided to try to have a mixture of Mr. True's relaxed atmosphere and honesty combined with the structure of the other teacher's class, combined with my own instincts.

On a couple of occasions, I also spoke with previous student teachers and the other student teaching at Forest Grove. It was interesting to see how the students interacted with the other student teachers, and also nice to hear that they had the same struggles that I faced. After speaking with the other student teachers, I always felt confident that I was doing a good job, and also relieved that my students were on par, if not better than, what seemed the norm. Another

advantage I had as a student teacher was that I work in the STEM Education Center at Worcester Polytechnic Institute (WPI). Therefore, I was surrounded by educators and if I ever needed advice, I could easily reach out to them. I found it especially helpful to speak to Katie Elmes, as she previously taught younger students and had experience with students closer to my students' age group. She was a great resource if I ever needed help handling a student, or advice on how to manage the classroom, or I needed an idea on an activity.

Another legal issue that requires thought as an educator is the resources from which I get any information. The Internet in particular is an area that can be surrounded by legal ambiguity. First of all, not every source of information of the Internet is reliable. When finding teaching resources on the Internet, as an educator, I need to be aware of what type of sources I am getting my information from. The sources I use need to be reliable and checked for accuracy, otherwise I could be spreading false information to my students, which is the opposite of what should be done as an educator. Secondly, I need to be aware of any legal rights when getting information from the Internet. I need to be sure that I am not breaking any copyright laws by using resources I find online. There exists a lot of illegally shared information on the Internet, and if I am then printing and distributing that information to my students I could be breaking laws and get into a lot of trouble. Therefore, whenever I used any information from the Internet, whether it was for a puzzle, or an activity, or an idea for a lesson plan, I always made sure to use sites that were reliable educational sources, such as .org or .edu sites. When using ideas for lesson plans that other educators had posted, I made sure to see that the poster said that they were willing to share their ideas and that anyone could use them. For example, when I created ZAP, I got the idea from another game I found online and altered it. The woman who had posted her original version

of ZAP made it clear that anyone could take the idea for the game and change it however they saw fit.

The last way to meet the professional responsibility as an educator is to "reflect critically upon my teaching experience," and, "identify areas for further professional development." When I was student teaching, and now, as I am tutoring, I constantly think of ways I can improve my instruction. The main way that I could reflect upon my teaching when I was a student teacher was through my advisor, Professor Goulet's, critiques. After being observed, Prof. Goulet would give me some things I could work on to improve my teaching. One critique I received after my first observation was to use different-colored markers to make important information and demonstrate ideas more clearly. This was easy enough to incorporate and required little effort. Another critique I received was to speak louder. I have always struggled with increasing the volume of my voice, so this involved me constantly being aware of how loud I was speaking, but was not very difficult to implement. I often told my students that if I was not speaking loud enough, they could politely raise their hand and let me know, because I knew it was something I struggled with and the students' feedback actually helped me improve. Other than the critiques given to me by Prof. Goulet, I was constantly thinking of ways I could improve my teaching. I would find myself lying in bed before I went to sleep and wondering what I could do the next day to keep the students focused, or excited about my next lesson plan. I would think about what I had done that day that did not work well, and think about ways I could improve upon it, or if I could have done something different entirely. Usually, my improvements would start off with small changes over time. I would adjust one thing one day and tweak another thing the next, and I could see the changes help me become more confident in my abilities to teach my students.

Chapter 7: My WPI Education

My education at WPI was a huge help in my time teaching at Forest Grove. Specifically, my major as an Actuarial Math student meant I had a vast knowledge of the math curriculum that I was covering with my students. Everything from something as simple as multiplying negative numbers, to graphing stem and leaf plots, up to the more complicated curriculum of probability are all things that I need to be able to do at the drop of a hat as a math major in college. Specifically, my major is most relevant to the probability portion of the curriculum, and I am not going to lie, I was very excited to learn that probability was something I would be able to teach to my students. As an Actuarial Math major, I have to take actuarial exams, and the first exam that most people take is on probability. The probability covered on my exam is vastly more complicated than what my 7th grade students were learning, but the basics are all the same, and I was excited to apply something that I was learning directly to what my students were learning.

Telling my students that I was studying the same type of material that they were was a really good experience when it came to telling them that math is in fact used in the real world. My students would often ask me what I would do when I got a job, and I would explain to them that I was going into insurance and would use math to calculate risks and rates and that those rates would be used to price insurance. They were interested in what I was going to do and they knew that the material they were learning was directly related to what I would be doing for a career, and I think that made them aware that math is used in the real world, for something that they probably never even thought would use math. The great thing about math is that it is used no matter what you do. Even if you have a job totally unrelated to math, you are going to use math at some point in your life. I would come into school and when I was chatting with my classes in down time, we would talk about real life, and I would bring up times that I used math

and applied skills they were learning to everyday life. Anything from finding coupons to go grocery shopping, to purchasing orders I did for my sorority, to paying off loans, used math and were all things that these students will need to do one day. If there is one thing I taught my students, it was that math is something that is used in day-to-day life and is, therefore, important to know.

Chapter 8: My Classes

I taught four classes when I worked at Forest Grove, and each class had an entirely different "personality." Each class was unique in its own way, and presented different challenges for me as an educator. One thing I will say about each of my classes is that, no matter how I felt when I woke up that morning, I left Forest Grove each day exhausted, yet happy. There were days when the last thing I wanted to do when I woke up was shovel out my car, or even get out of bed. I would drag my feet to get ready and get to the school, but as if by some magic, within minutes of walking through the door of Mr. True's classroom, I was instantly in a better mood. Walking in and watching students' faces light up and hear them say "Miss, you're here!" was an amazing feeling that I don't think I will ever forget.

The first class I ever interacted with was the "Revolution" cluster. Forest Grove splits their classes into clusters, and these students are generally in all the same classes together. They seemed to be split into clusters based on academic ability, but there were some exceptions to the rules, as made obvious by the Revolution clusters wide range of abilities. I was informed by Mr. True that, at the beginning of the school year, the Revolution class had maybe ten students in it. These were students that needed extra attention and whose math skills were below average. Unfortunately, due to the shuffling of students who did not behave well, and students who

decided they did not want to take a language class, the Revolution group quickly grew from ten to 20, and when I began teaching in January, there were still three or four students who were added to this class throughout the last couple of months of school. As a result, the Revolution group transformed from a small group of students that needed extra attention into an overwhelming amount of students, some of which needed a lot of attention and needed to repeatedly go over the basics, to some who were advanced and did not need a second math class, but chose to take one. In addition, some students were somewhere in the middle, but were kicked out of their previous class because they had behavioral issues. This made teaching the Revolution group an extremely challenging, but also rewarding experience. I had to focus individually with a few students on the basics, while challenging the advanced students, all while keeping an eye on the students who acted out consistently. I think I spent the most time working with these students, and I got to know them the best out of all of my classes, which helped me learn how to adapt and create lesson plans that would benefit everyone. I spent a lot of time letting the kids work in pairs or groups, and put a lot of effort into creating groups that I knew would mesh well together. There were two girls who I knew could do the work and would get the work done if paired together, so I would often give them more challenging problems or help them less than the other students. There were three girls who were of different levels, but when working together would teach each other, however, I had to make sure they were staying on topic. There were two girls who did not like each other, and I had to keep them far away from each other at all times to keep altercations at a minimum. There were two boys who could do all the work and then some, but would get extremely bored easily and become a distraction to the other students, so they required extra puzzles to do when they completed their work. One of the boys in particular would act out constantly, until we thought to give him a Ken-Ken puzzle and

then he became an entirely different student, who would work quietly and quickly so he could be given a new puzzle to do.

One girl in particular in the Revolution cluster was a very challenging student. She was added to the class late in the year, maybe February, because her previous teacher could not handle her behavior. The first challenge was that she did not get along with one of the other girls in the class. They would consistently argue in class, and although it only escalated once, it was still a challenge to keep the two of them in line. She also had problems with speaking out, not doing her work, and distracting the other students by doing anything for attention. She would get up and walk around during class, or shout out answers, or pick fights with other students. It was clear she wanted attention, and I had to learn how to balance giving her attention to settle her down, and not instigating or condoning her bad behavior. Luckily, she seemed to like me, and therefore when I taught, the distractions she caused were at a minimum. On occasion she would shout out while I was speaking, but I would usually answer her question and ask her to raise her hand and she would settle down for a little bit, which was a huge improvement from her behavior in other classes. There were a couple of times where I needed to tell her to sit back down or to be quiet but, overall, I was impressed with her behavior compared to what I had seen when I was observing her in other classes.

This class was also interesting to work with because it had a handful of students that required special needs. The teacher-aid helped work with the nine students that needed the extra help. They were special needs in a variety of ways. One student had some degree of autism, and required a special aid that worked solely with him to help him. Another also had a form of autism, but would try his best and was one of my best behaved students. One student was an ELL student, and required directions to be explained more slowly. I would often try to visualize

instructions with her because pictures are more universal than words. The other students either had behavioral or work ethic problems. A couple of the students would never do any work, no matter what I tried. If they answered five questions on any given quiz, I would be impressed that they tried. Some on the other hand, would try to do their work, but simply lacked the basic abilities to do as well. What I found frustrating was that all of these students, with their varying degrees of ability and issues, were all grouped together and put in the same class. They also were separated from the other students the rest of the day. Every day, they would come into my class in the morning, and would be with other students, but then would spend a majority of the day in another class all together. They were grouped together because they all had special needs, but their needs were so different it seemed like an unfair solution to seclude them for part of the day and put students that were capable of doing the work but did not want to try in the same category as those who tried but struggled.

I was most proud of my work with this first class of the day. They were the class who I thought struggled the most, and were also harder to deal with behaviorally. There were a lot of attitudes in that class, but the same students could also be a joy to have in class. There was one girl in this class that I felt I had a particularly positive impact on. When I first arrived at Forest Grove, she clearly was capable of doing the work, but lacked motivation to do well. She would do average on quizzes and often talked a lot in class to her friends. As time went on, I noticed her behavior was improving and she was also trying much harder on quizzes. Her grades improved remarkably and became an A students by the end of the year, which is enough to make any educator proud. She was one of the students who would always get excited when I would come into class and would ask for help on the board work so she could make sure she got the answer right. I felt that I had a positive impact on this girl, and that she looked up to me in one way or

another. She even wanted me to sign her yearbook on the last day of school, which I took as an honor. I was particularly proud of the impact I had on this student because she was an average student before who had a bit of an attitude problem, but I feel that I made her realize that she could do the work and she was a very bright girl who just needed to put in a little more effort to get results.

On the flip side, my biggest frustration as an educator was a student in the same class, who would not do any work. I had students who were much more difficult to work with, who would yell and complain and fight every inch, but I also knew that they were dealing with problems outside of school. A lot of my students had a difficult home life, and it affected their work. I remember how hard middle school was, and I had a great home life, so I cannot imagine what it is like for these students who have other problems. The student that I found most frustrating did not have behavioral problems, or a learning disability, he had a lack of work ethic, and this is what I found most frustrating. He would tell me he couldn't do the work, but when I would give him one on one time, he would almost always get the answer right. He was a smart kid who did not know how to try, and would put infinite time and effort trying to get out of doing any work, much more than he would ever spend on the actual problems he was given. I found this student to be my most frustrating because I knew he could do the work, and if he had directed all the energy he had towards trying the problems he could have been one of the best students in the class. Instead he spent his energy complaining about the work, and trying to get out of it. I did not know how to change his work ethic, or help him without basically holding his hand through every problem he did. I wanted him to do the work, and could get him to do it, but it required me giving him all of my attention, which in a class of thirty-something students, a third of which have special needs, is impossible to do. The students who had a difficult home life

and were clearly dealing with a lot were frustrating, but I could understand that they were struggling. It was the student who put in zero effort that made me the most frustrated as an educator.

The second class I had with another challenging student was the Sequoias 1 cluster. There were actually a couple of challenging students, but one was the most challenging by far. Similar to the challenge student in the Revolution cluster, this student had a behavioral problem. This student was a little more difficult to deal with because his attitude was extremely negative. In fact, he affected the atmosphere of the entire classroom. On the days where he was absent, the classroom, while still having its problems, was much more focused, positive, and capable of learning. While I am not sure exactly why this students acted out constantly, I assume it had to do with his home life. The difference between him and the previous challenge student I mentioned was that she was, for the most part, reasonable. If she received the attention she was looking for, she would often be satisfied for a time and do her work. This student, on the other hand, was insatiable. Every time he was given attention, he would require more. If you ignored him, he would act out further. There was no good way that I had observed or tried to keep him quiet and to keep him from affecting the other students' attitudes in the process. I felt awful, I was failing at my job to instill learning in this student. I tried for the most part to treat him as I would treat any other of my students. I did not want to give him the extra attention he was looking for because even when he received the attention he would act out more. He would refuse to do work on quizzes, and keep other students from doing their work as well. I did not know what else there was to do. Activities did not work very well, although on occasion they would work. Speaking to his parents did not work either, as they had had plenty of meetings with teachers before.

The student ended up being transferred to a school for students with behavioral issues. In this particular case, it appears there was nothing that any of the educators could do to reach this student. It made me extremely sad to think that there are students who are so hard to reach and inspire that they need to be sent to a different school. I felt as if I had not done my job as well as I could have. I wonder if there was some way I could have reached out for him. However, when he left, the entire atmosphere of the class changed. The students were much more focused and easy to control. The other students that were also challenging mellowed out, and the main way to settle them down was to play some music that they enjoyed while they worked. They still acted up from time to time, but they were also much more enthusiastic, willing to listen, and their grades improved remarkably. The lesson I learned from that class was that it turns out that some students are beyond what I can handle, especially as a new educator. While it is a hard lesson to swallow, I am glad that I learned it when I had help from a mentor and someone to back up that I was not failing as an educator.

When I first started student teaching, I was very overwhelmed by the craziness of the day, but after months of student teaching I found it exhausting, but manageable and enjoyable by the end of the day. Mr. True helped me learn a lot about being an educator. First of all, I learned that every educator has to find their own technique to teaching, and one way of teaching for one person might not work for another person. You have to find out what type of educator you want to be, and what atmosphere and learning environment works best for you, and for the students. Another thing that I appreciated that he did as an educator was that he treated his students like people. Remembering back to middle school, I often felt like I was treated as a child, which I was, but I found that Mr. True let the students have a little more responsibility and treated them like he would treat anyone else, provided they behaved respectfully. I treated my students the

same for two reasons: first of all, I think it is fair to treat students like adults provided they act as such and secondly, coming from college, I am not used to the structure of middle school. When I came to the school, I found the idea of not letting students go to the bathroom when they need to go, or not letting them have water bottles in class to be so foreign. However, those are the rules the school set, so that is what needed to be done, but I did try to be as lenient as possible provided the students acted responsibly. Another thing that Mr. True taught me as an educator was that it is incredibly important to let the students know they are capable of doing well and succeeding if they try, and that they are capable of getting a good job, or buying a car. He told the students constantly how they could improve their lives if they did not like their current situation. He told them how his son pushed grocery carts and didn't like it, so he went to school and now has a nice job where he gets paid to go to baseball games and gets benefits and makes a lot of money. At the same time, Mr. True made sure to let the students know that there was nothing wrong with living in an apartment or not owning a car, but that if the students wanted to live a different way, they could if they tried hard in school. Mr. True instilled in me that students should be treated with respect and not like children, provided that they did not take advantage, and also taught me that while the curriculum is important, it is just as important to tell students that they can do well if they try hard, and that it is possible to be successful no matter where you come from and who you are, and most importantly that as their educator, you believe in their abilities.

Conclusion

Teaching was an experience I will never forget. Every day I faced a different challenge, and felt a sense of pride in my students when they figured out a problem. During my time at

Forest Grove, I accomplished competence in the five Professional Standards. I planned creative lessons and quizzes which covered the 7th grade math curriculum. I delivered instruction clearly to my students and made sure to be effective with both my time and my students' time. I worked to keep the classroom climate fun, but conducive to learning. I even accomplished the more nuanced Professional Standards, like promoting equity and meeting professional responsibilities. All my students were treated as equals, and they were all treated with respect, while still maintaining a professional relationship with them. Throughout the paper, I have shown that I have accomplished all that is required from the five Professional Standards. My competence has been proven through the examples of lessons that I used as well as the situations I mentioned earlier in the paper. I truly believe that I have proven myself as an educator, and used the entire project as a time to not only improve my abilities as an educator, but also to improve my students' lives in one way or another.

References:

PQP Resources:

http://www.bostonpublicschools.org/ELL

http://edglossary.org/english-language-learner/

http://www.ascd.org/research-a-topic/english-language-learners-resources.aspx

http://profiles.doe.mass.edu/mcas/achievement_level.aspx?linkid=32&orgcode=03480415&orgtypecode=6&

http://profiles.doe.mass.edu/analysis/default.aspx?orgcode=03480415&orgtypecode=6&

http://www.parcconline.org/parcc-model-content-frameworks

http://www.doe.mass.edu/candi/commoncore/

http://www.doe.mass.edu/candi/commoncore/Implementing.pdf

http://www.corestandards.org/about-the-standards/frequently-asked-questions/#faq-2298

http://www.doe.mass.edu/frameworks/math/0311.pdf

http://alec.org/docs/ReportCard_19_Edition.pdf

http://nces.ed.gov/nationsreportcard/about/

https://nces.ed.gov/TIMSS/results11.asp

http://www.massinsight.com/publications/ACSC/226/file/3/pubs/2013/05/10/EdReformReport.pdf

IQP Resources

http://www.doe.mass.edu/frameworks/math/0311.pdf

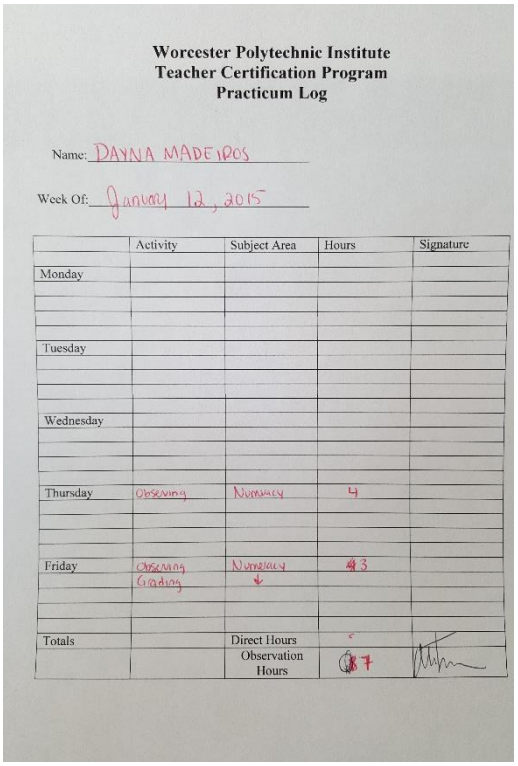
http://www.pbslearningmedia.org/resource/f9dbedd6-b4ed-47b4-bdd1-69ab5c73deae/f9dbedd6-b4ed-47b4-bdd1-69ab5c73deae/

http://www.doe.mass.edu/edprep/toolkit/1415/PSTforTeachers.pdf

https://www.jeopardy.rocks/fgnumeracy

Appendix

Hour Logs

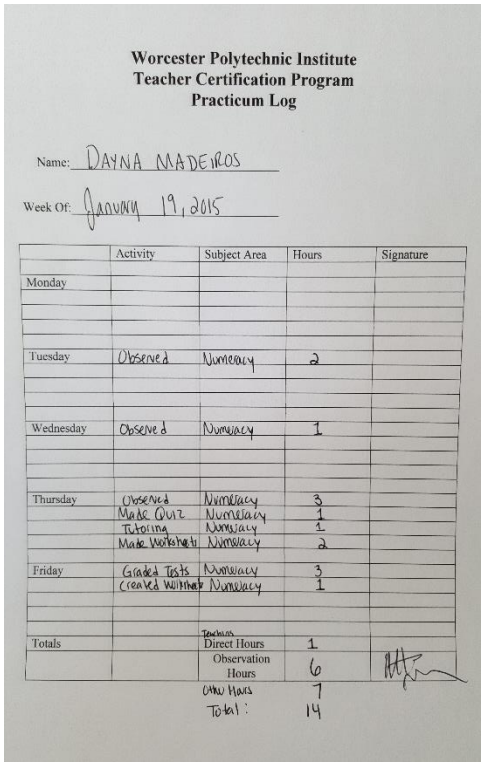


Worcester Polytechnic Institute
Teacher Certification Program
Practicum Log

Name: DAYNA MADEIROS

Week Of: January 12, 2015

	Activity	Subject Area	Hours	Signature
Monday				
Tuesday				
Wednesday				
Thursday	Observing	Numeracy	4	
Friday	Observing Grading	Numeracy	3	
Totals		Direct Hours Observation Hours	7	

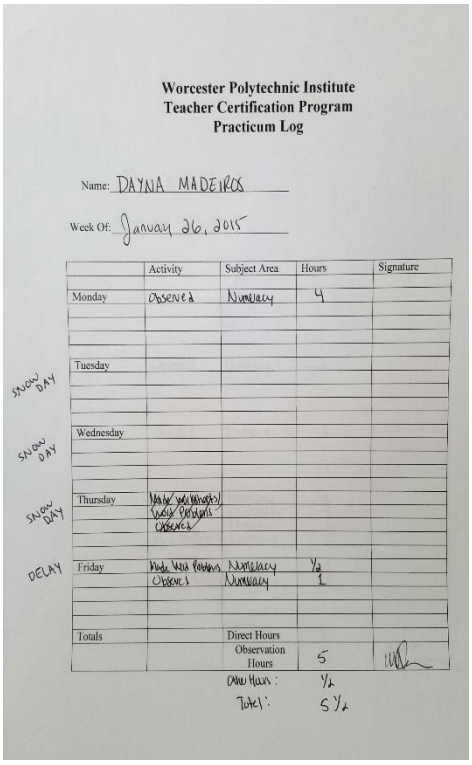


Worcester Polytechnic Institute
Teacher Certification Program
Practicum Log

Name: DAYNA MADEIROS

Week Of: January 19, 2015

	Activity	Subject Area	Hours	Signature
Monday				
Tuesday	Observed	Numeracy	2	
Wednesday	Observed	Numeracy	1	
Thursday	Observed Make Quiz Tutoring Make Worksheet	Numeracy Numeracy Numeracy Numeracy	3 1 1 2	
Friday	Graded Tests Created Worksheet	Numeracy Numeracy	3 1	
Totals		Teacher Direct Hours Observation Hours	1 6	
		Other Hours Total:	7 14	

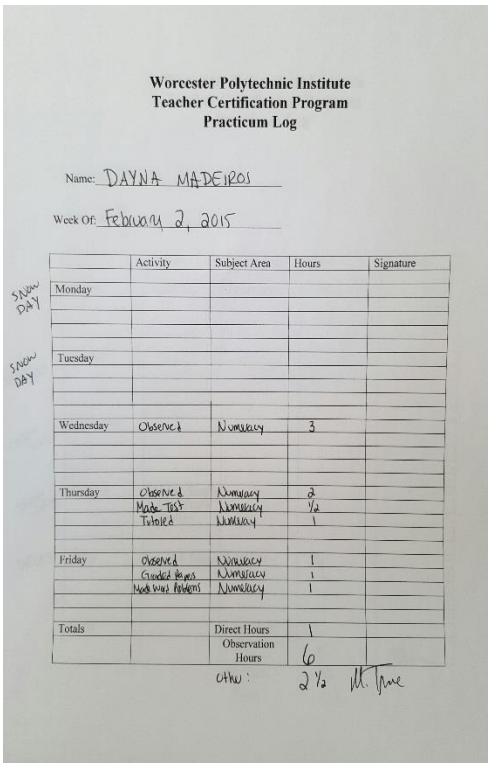


Worcester Polytechnic Institute
Teacher Certification Program
Practicum Log

Name: DAYNA MADEIROS

Week Of: January 26, 2015

	Activity	Subject Area	Hours	Signature
Monday	Observed	Numeracy	4	
SNOW DAY Tuesday				
SNOW DAY Wednesday				
SNOW DAY Thursday	Make Worksheets Grade Worksheets Observed			
DELAY Friday	Made Word Problems Observed	Numeracy Numeracy	½ 1	
Totals		Direct Hours Observation Hours	5	
		Other Hours: Total:	½ 5½	

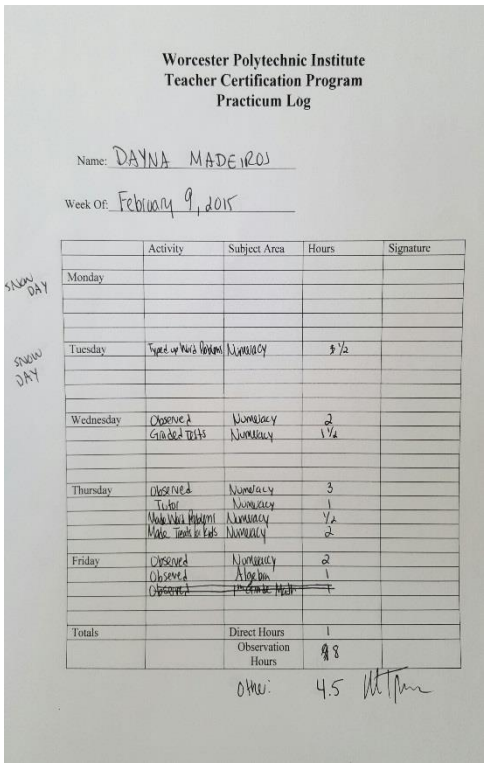


Worcester Polytechnic Institute
Teacher Certification Program
Practicum Log

Name: DAYNA MADEIROS

Week Of: February 2, 2015

	Activity	Subject Area	Hours	Signature
SNOW DAY Monday				
SNOW DAY Tuesday				
Wednesday	Observed	Numeracy	3	
Thursday	Observed Make Test Tutored	Numeracy Numeracy Numeracy	2 ½ 1	
Friday	Observed Graded Papers Made Word Problems	Numeracy Numeracy Numeracy	1 1 1	
Totals		Direct Hours Observation Hours	1 6	
		Other:	2½	

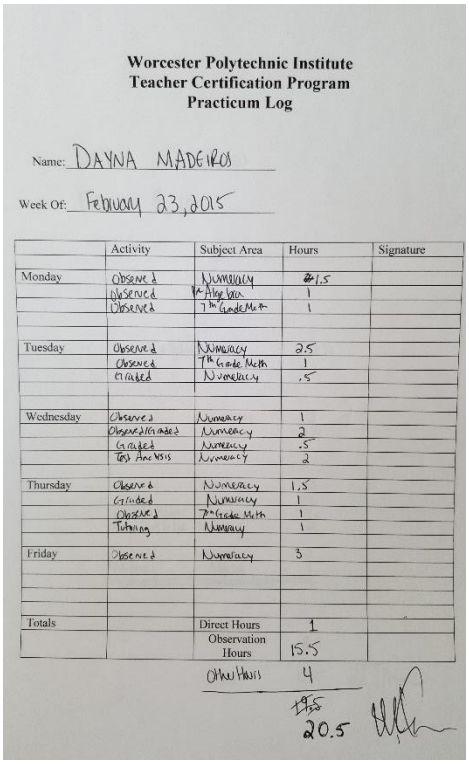


Worcester Polytechnic Institute
Teacher Certification Program
Practicum Log

Name: DAYNA MADEIROS

Week Of: February 9, 2015

	Activity	Subject Area	Hours	Signature
SNOW DAY Monday				
SNOW DAY Tuesday	Typed up Word Problem	Numeracy	3½	
Wednesday	Observed Graded Tests	Numeracy Numeracy	2 1½	
Thursday	Observed Tutor Made Word Problems Made Tests for Kids	Numeracy Numeracy Numeracy Numeracy	3 1 ½ 2	
Friday	Observed Observed ~~Observed~~	Numeracy Algebra ~~7th Grade Math~~	2 1 ~~1~~	
Totals		Direct Hours Observation Hours	1 8	
		Other:	4.5	



Worcester Polytechnic Institute
Teacher Certification Program
Practicum Log

Name: DAYNA MADEIROS

Week Of: February 23, 2015

	Activity	Subject Area	Hours	Signature
Monday	Observed Observed Observed	Numeracy Algebra 7th Grade Math	1.5 1 1	
Tuesday	Observed Observed Graded	Numeracy 7th Grade Math Numeracy	2.5 1 .5	
Wednesday	Observed Observed/Graded Graded Test Analysis	Numeracy Numeracy Numeracy Numeracy	1 2 .5 2	
Thursday	Observed Graded Observed Tutoring	Numeracy Numeracy 7th Grade Math Numeracy	1.5 1 1 1	
Friday	Observed	Numeracy	3	
Totals		Direct Hours Observation Hours	1 15.5	
		Other Hours	4 19.5 20.5	

Worcester Polytechnic Institute
Teacher Certification Program
Practicum Log

Name: DAYNA MADEIROS

Week Of: MARCH 2, 2015

	Activity	Subject Area	Hours	Signature
Monday	Observed	Numeracy	2	
	Made Word Problems	Numeracy	1.5	
Tuesday	One on One Teaching	Numeracy	1	
	Observed	↓	1.5	
	Made Word Problems		1	
Wednesday	Observed	Numeracy	2.5	
Thursday	One on One teaching	Numeracy	.5	
	Observed	↓	2.5	
	Made Quiz		.5	
Friday	One on One	Numeracy	1	
	Graded	↓	1	
	Observed		1.5	
Totals		Direct Hours	2.5	
		Observation Hours	10	

Prep 4

Worcester Polytechnic Institute
Teacher Certification Program
Practicum Log

Name: DAYNA MADEIROS

Week Of: MARCH 9, 2015

	Activity	Subject Area	Hours	Signature
Monday	One on One	Numeracy	.5	
	Graded	↓	1	
	Observed		2.5	
	Created Worksheet		1.5	
Tuesday	One on One	Numeracy	.5	
	Observed	↓	3.5	
	Grade Analysis		1	
	Grade Entry		1	
Wednesday	~~One on One~~ Taught	Numeracy	.5	
	Observed	↓	2.5	
	Made Quiz/Worksheets		1.5	
	Made Notes (Decimals Negatives)		1.5	
Thursday	Taught	Numeracy	3	
	Prep	↓	1	
	Observed		.5	
Friday	Taught	Numeracy	1.5	
	Observed	↓	1.5	
	Graded		1.5	
Totals		Direct Hours	6	
		Observation Hours	10.5	

Prep 10

Worcester Polytechnic Institute
Teacher Certification Program
Practicum Log

Name: DAYNA MADEIROS

Week Of: MARCH 16, 2015

	Activity	Subject Area	Hours	Signature
Monday	Taught	Numeracy	1	
	Observed	↓	1.5	
	Graded		1	
	Grade Entry		.5	
Tuesday	Taught	Numeracy	.5	
	Lesson Plan Prep	↓	1	
	Observed		1.5	
Wednesday	One on One	Numeracy	1	
	Taught	↓	1	
	Prep		1	
	Observed		1	
Thursday	One on One	Numeracy	.5	
	Observation	↓	1	
	Made Jeopardy Game		1.5	
	Tutoring		1	
Friday	One on One	Numeracy	1	
	Observation	↓	.5	
	Graded		2	
Totals		Direct Hours	~~5~~ 6	
		Observation Hours	5.5	

Prep 7

Worcester Polytechnic Institute
Teacher Certification Program
Practicum Log

Name: DAYNA MADEIROS

Week Of: MARCH 23, 2015

	Activity	Subject Area	Hours	Signature
Monday	Taught	Numeracy	.5	
	Observed	↓	1	
	Graded		1.5	
	Made Word Problems		.5	
Tuesday	Taught	Numeracy	1	
	Grade Analysis	↓	2	
Wednesday	One on One	Numeracy	1	
	Grade Analysis	↓	2	
Thursday	Made Overheads	Numeracy	2	
	Observed	↓	1	
	Tutoring		1	
Friday	One on One	Numeracy	1	
	Grade Analysis	↓	2.5	
	Observed		.5	
Totals		Direct Hours	3.5	
		Observation Hours	2.5	

Prep 10.5

Worcester Polytechnic Institute
Teacher Certification Program
Practicum Log

Name: DAYNA MADEIROS

Week Of: MARCH 30, 2015

	Activity	Subject Area	Hours	Signature
Monday	One on one	Numeracy	.5	
	Observed	↓	2	
	Made Quiz		.5	
Tuesday				
Wednesday				
Thursday	One on One	Numeracy	1	
	Graded	↓	.5	
	Observed		.5	
Friday				
Totals		Direct Hours	1.5	
		Observation Hours	2.5	

Prep 1

Worcester Polytechnic Institute
Teacher Certification Program
Practicum Log

Name: DAYNA MADEIROS

Week Of: APRIL 6, 2015

	Activity	Subject Area	Hours	Signature
Monday				
Tuesday	Observed	Numeracy	1.5	
Wednesday	Taught	Numeracy	1	
	Entered Grades	Numeracy	.5	
Thursday	Taught	Numeracy	1.5	
Friday	Taught	Numeracy	1.5	
	Worksheets	Numeracy	2.5	
	~~Grade Analysis~~			
Totals		Direct Hours	4	
		Observation Hours	1.5	

Prep 3

Worcester Polytechnic Institute
Teacher Certification Program
Practicum Log

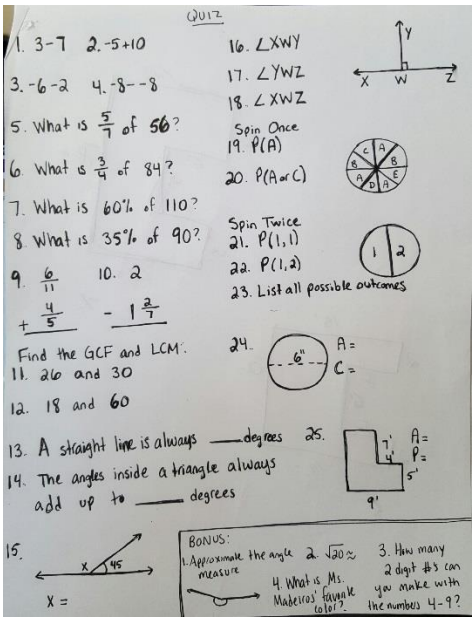
Name: DAYNA MADEIROS

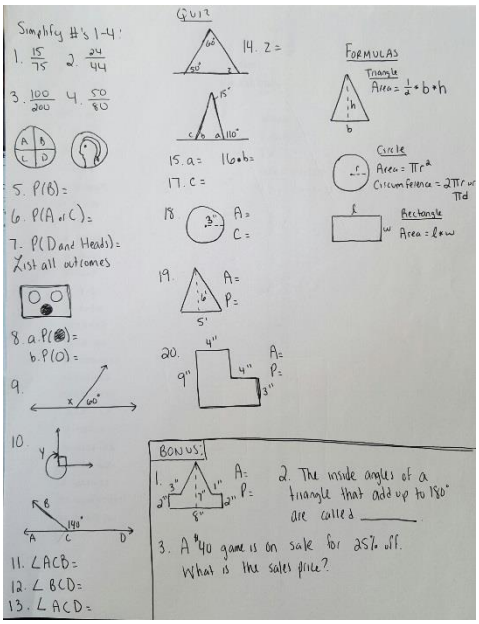
Week Of: APRIL 13, 2015

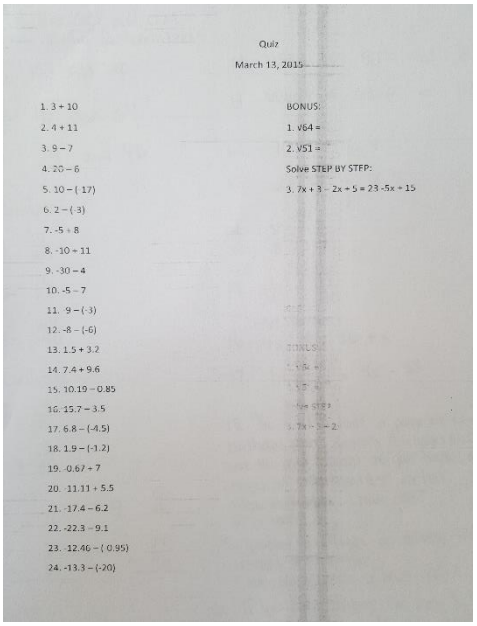
	Activity	Subject Area	Hours	Signature
Monday	Prep	Numeracy	2	
Tuesday	Teaching	Numeracy	2	
	Prep	Numeracy	1	
Wednesday	Teaching	Numeracy	1	
Thursday	Tutoring	Numeracy	1	
Friday	Teaching	Numeracy	2	
	Graded	Numeracy	2	
Totals		Direct Hours	6	
		Observation Hours		

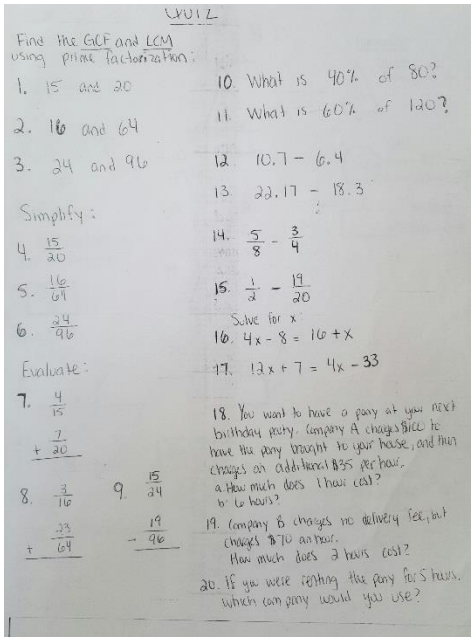
Prep/other 5

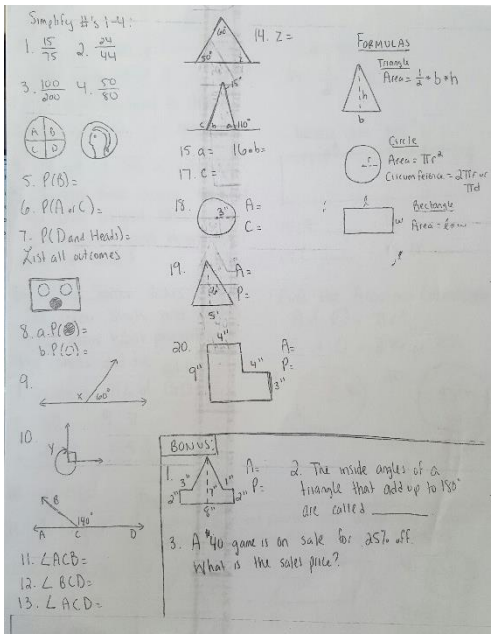
Quizzes


QUIZ
1. 3-7 2. -5+10
3. -6-2 4. -8--8
5. What is 5/7 of 56?
6. What is 3/4 of 84?
7. What is 60% of 110?
8. What is 35% of 90?
9. 6/11 + 4/5
10. 2 - 1 2/7
Find the GCF and LCM:
11. 26 and 30
12. 18 and 60
13. A straight line is always ___ degrees
14. The angles inside a triangle always add up to ___ degrees
15. x 45 X =
16. ∠XWY
17. ∠YWZ
18. ∠XWZ
Spin Once
19. P(A)
20. P(A or C)
Spin Twice
21. P(1,1)
22. P(1,2)
23. List all possible outcomes
24. 6" A= C=
25. 7' 4' 5' 9' A= P=
BONUS:
1. Approximate the angle measure
2. √20 ≈
3. How many 2 digit #s can you make with the numbers 4-9?
4. What is Ms. Madeiros' favorite color?


QUIZ
Simplify #'s 1-4:
1. 15/75 2. 24/44
3. 100/200 4. 50/80
5. P(B)=
6. P(A or C)=
7. P(D and Heads)=
List all outcomes
8. a. P(☻)= b. P(☺)=
9. x 60°
10. Y B 140° A C D
11. ∠ACB=
12. ∠BCD=
13. ∠ACD=
14. z=
15. a= 16•b=
17. c=
18. 3" A= C=
19. 16 5' A= P=
20. 4" 9" 4" 3" A= P=
FORMULAS
Triangle Area = 1/2 • b • h
Circle Area = πr² Circumference = 2πr or πd
Rectangle Area = l • w
BONUS:
1. 3" 1" 2" 8" A= P=
2. The inside angles of a triangle that add up to 180° are called ___
3. A $40 game is on sale for 25% off. What is the sales price?


Quiz
March 13, 2015
1. 3 + 10
2. 4 + 11
3. 9 - 7
4. 20 - 6
5. 10 - (-17)
6. 2 - (-3)
7. -5 + 8
8. -10 + 11
9. -30 - 4
10. -5 - 7
11. 9 - (-3)
12. -8 - (-6)
13. 1.5 + 3.2
14. 7.4 + 9.6
15. 10.19 - 0.85
16. 15.7 - 3.5
17. 6.8 - (-4.5)
18. 1.9 - (-1.2)
19. -0.67 + 7
20. 11.11 + 5.5
21. -17.4 - 6.2
22. -22.3 - 9.1
23. 12.46 - (-0.95)
24. -13.3 - (-20)
BONUS:
1. √64 =
2. √51 =
Solve STEP BY STEP:
3. 7x + 3 - 2x + 5 = 23 - 5x + 15


QUIZ
Find the GCF and LCM using prime factorization:
1. 15 and 20
2. 16 and 64
3. 24 and 96
Simplify:
4. 15/20
5. 16/64
6. 24/96
Evaluate:
7. 4/15 + 7/20
8. 3/16 + 23/64
9. 15/24 - 19/96
10. What is 40% of 80?
11. What is 60% of 120?
12. 10.7 - 6.4
13. 22.17 - 18.3
14. 5/8 - 3/4
15. 1/2 - 19/20
Solve for x
16. 4x - 8 = 16 + x
17. 12x + 7 = 4x - 33
18. You want to have a pony at your next birthday party. Company A charges $100 to have the pony brought to your house, and then charges an additional $25 per hour. How much does 1 hour cost? b. 6 hours?
19. Company B charges no delivery fee, but charges $70 an hour. How much does 3 hours cost?
20. If you were renting the pony for 5 hours, which company would you use?


Simplify #'s 1-4:
1. 15/75 2. 24/44
3. 100/200 4. 50/80
5. P(B)=
6. P(A or C)=
7. P(D and Heads)=
List all outcomes
8. a. P(☻)= b. P(☺)=
9. x 60°
10. Y B 140° A C D
11. ∠ACB=
12. ∠BCD=
13. ∠ACD=
14. z=
15. a= 16•b=
17. c=
18. 3" A= C=
19. 16 5' A= P=
20. 4" 9" 4" 3" A= P=
FORMULAS
Triangle Area = 1/2 • b • h
Circle Area = πr² Circumference = 2πr or πd
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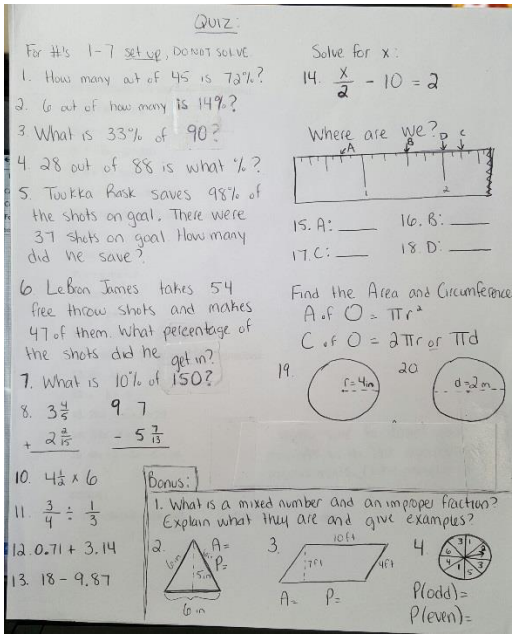

QUIZ
For #'s 1-7 set up, DO NOT SOLVE
1. How many at of 45 is 78%?
2. 6 out of how many is 149%?
3. What is 33% of 90?
4. 28 out of 88 is what %?
5. Toukka Rask saves 98% of the shots on goal. There were 37 shots on goal. How many did he save?
6. LeBron James takes 54 free throw shots and makes 47 of them. What percentage of the shots did he get in?
7. What is 10% of 150?
8. 3 4/5 + 2 2/15
9. 7 - 5 7/13
10. 4 1/2 x 6
11. 3/4 ÷ 1/3
12. 0.71 + 3.14
13. 18 - 9.87
Solve for x:
14. x/2 - 10 = 2
Where are we?
15. A: ___ 16. B: ___
17. C: ___ 18. D: ___
Find the Area and Circumference
A of ○ = πr²
C of ○ = 2πr or πd
19. r = 4m
20. d = 2m
Bonus:
1. What is a mixed number and an improper fraction? Explain what they are and give examples?
2. 15° 6 in A= P=
3. 10 ft 7 ft 4 ft A= P=
4. P(odd)= P(even)=

For problems 1-5 combine like terms:

1. $3x + 8 - x + 2$
2. $x + x + x + x$
3. $7 - 4x - 5 + 10x$
4. $6 + 1 + 5x + 5x$
5. $2x + 3x + 8 - 4x - 6$

For problems 6-10, use substitution:

$x = 2$ $y = -1$ $z = 0$

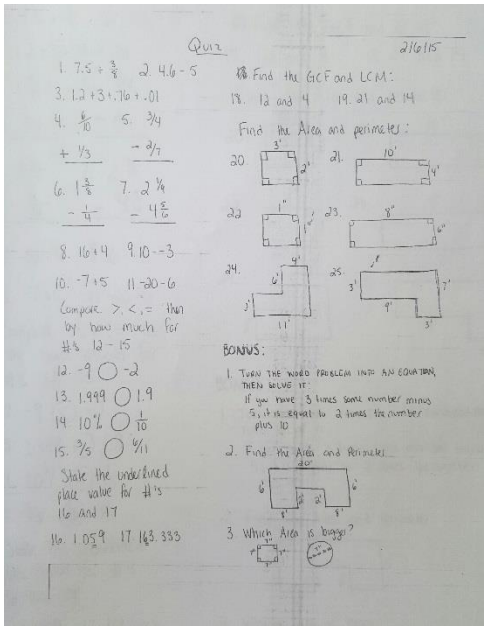
6. $2x + 4 = ?$
7. $x + y + z = ?$
8. $5(x + 9z) = ?$
9. $x*y*z = ?$
10. $x^2 + 6$ (Hint: $x^2 = x*x$)

For problems 11-15, solve the equations:

11. $3x - 11 = 4$
12. $x + 1 = -3$
13. $10x + 3x + 1 = 27$
14. $12x - 4 = 20$
15. $-8x - 6 + 5x - 5 = 16$

BONUS:

1. $10x + 5x + 3 = -5x + 43$ 2. $\sqrt{121} = ?$ 3. $\sqrt{80} \approx$



Quiz 2/6/15

1. $7.5 + \frac{3}{8}$ 2. $4.6 - 5$

3. $1.2 + 3 + .76 + .01$

4. $\frac{6}{10}$ 5. $\frac{3}{4}$

$+ \frac{1}{3}$ $- \frac{2}{7}$

6. $1\frac{3}{8}$ 7. $2\frac{1}{4}$

$- \frac{1}{4}$ $- 4\frac{5}{6}$

8. $16 + 4$ 9. $10 - -3$

10. $-7 + 5$ 11. $-20 - 6$

Compare $>, <, =$ then by how much for #'s 12 - 15

12. $-9 \bigcirc -2$

13. $1.999 \bigcirc 1.9$

14. $10\% \bigcirc \frac{1}{10}$

15. $\frac{3}{5} \bigcirc \frac{6}{11}$

State the underlined place value for #'s 16 and 17

16. $1.05\underline{9}$ 17. $16\underline{3}.333$

18. Find the GCF and LCM:

18. 12 and 4 19. 21 and 14

Find the Area and perimeter:

20. 3', 2' 21. 10', 4'

22. 1", 1" 23. 8", 6"

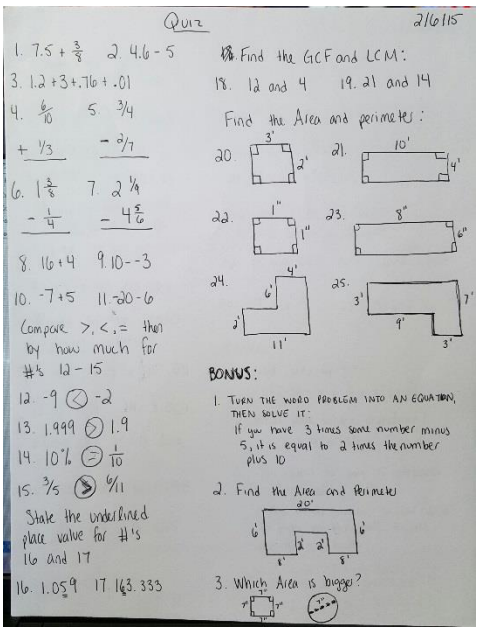
24. 4', 6', 3', 11' 25. 3', 7', 9', 3'

BONUS:

1. Turn the word problem into an equation, then solve it:
If you have 3 times some number minus 5, it is equal to 2 times the number plus 10

2. Find the Area and Perimeter:

3. Which Area is bigger?



Quiz 2/6/15

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If you have 3 times some number minus 5, it is equal to 2 times the number plus 10

2. Find the Area and Perimeter:

3. Which Area is bigger?

Quiz 1/22/15

State the underlined place value for #1-6

1. $12\underline{3}.45$ 4. $7.16\underline{5}$

2. $1064.\underline{3}3$ 5. $0.1\underline{7}$

3. $8\underline{9}.99$ 6. $\underline{3}33.33$

Round to the nearest tenth for #'s 7-10

7. $1.\underline{9}8$ 8. $43.\underline{0}5$

9. $0.\underline{3}17$ 10. $70.\underline{1}23$

Round to the nearest hundredth for #11-14

11. $6.7\underline{1}4$ 12. $207.0\underline{4}$

13. $15.7\underline{9}9$ 14. $8.0\underline{0}1$

Make #'s 15-18 look like money.

15. 10.2567 16. 1.095

17. $25.00\underline{7}$ 18. 16.5

19. $\$5.00 - \$3.62$

20. $\$6.37 - \$0.54$

21. $\$20.63 + \$0.37$

Find the LCM and GCF (Don't forget to Label):

22. 14 and 42 24. 30 and 50

23. 7 and 9 25. 18 and 12

BONUS:

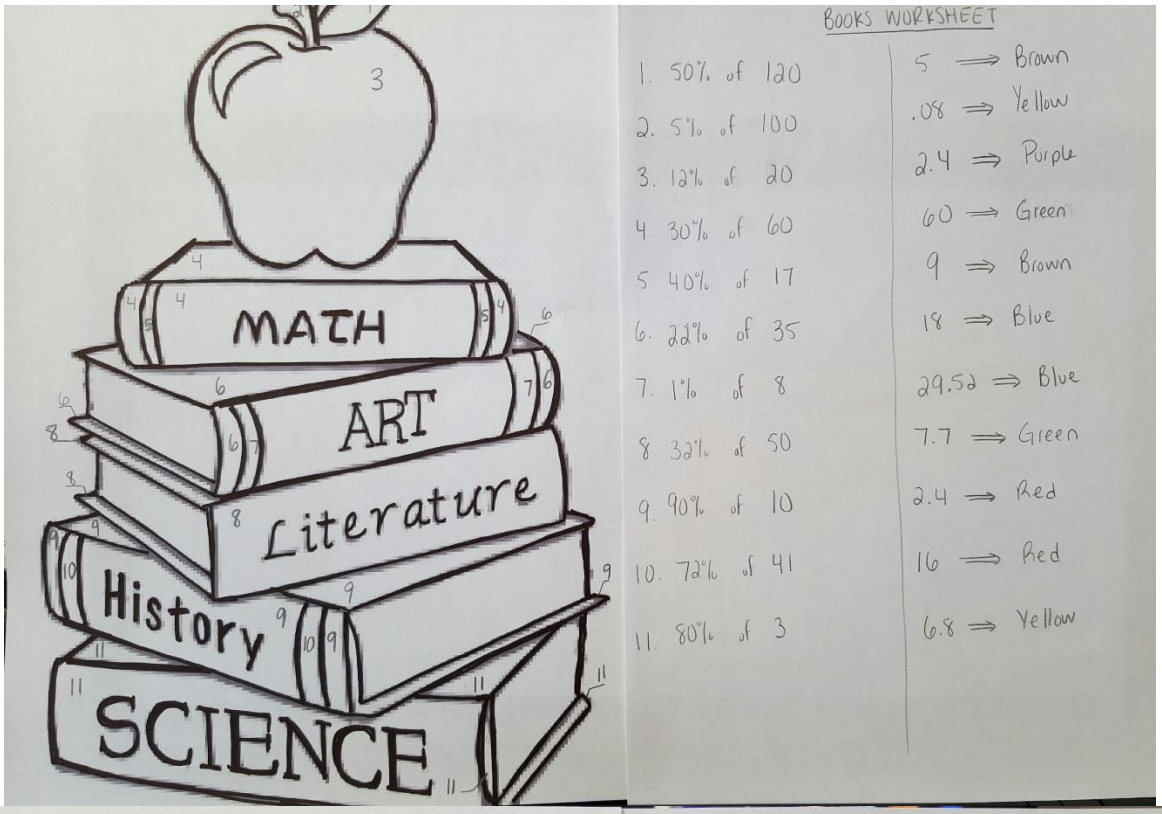
1. Solve, step by step:
$4(2-3) - x = 5 + x(1+2)$

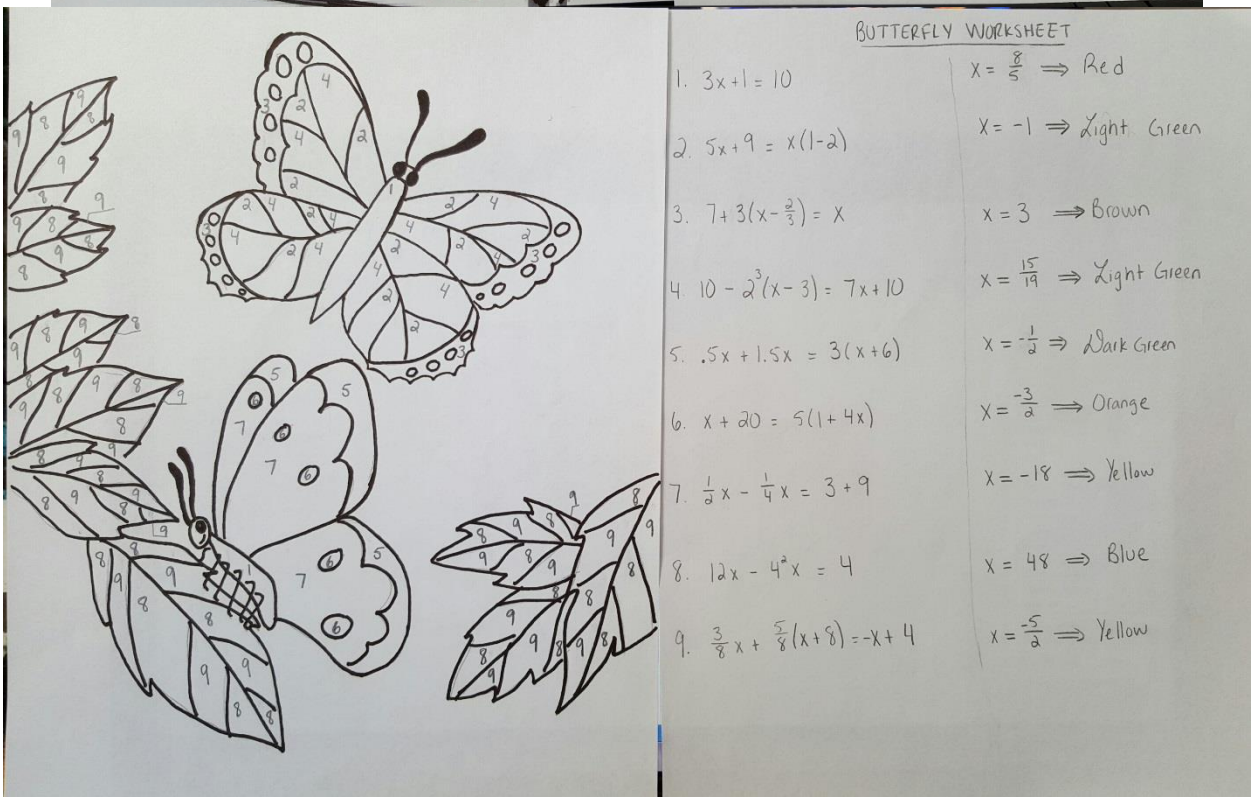
2. What place value is underlined?
123.456789

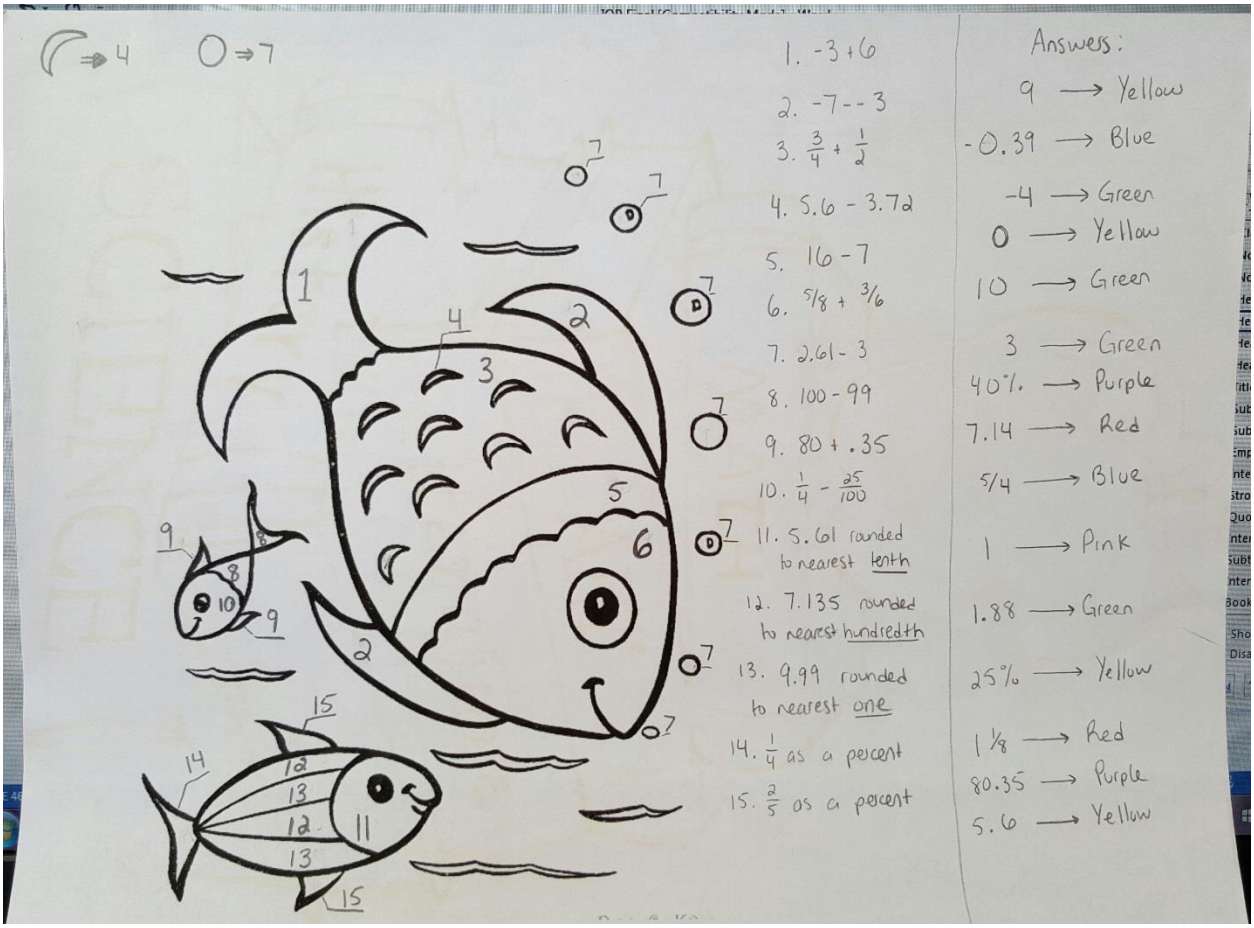
3. You want to buy 5 notebooks for $\$0.75$ each.
a. How much money do you need to bring to the store to buy all 5 notebooks?
b. If sales tax is 6%, how much money do you need to bring to the store to buy all 5 notebook?

Activities

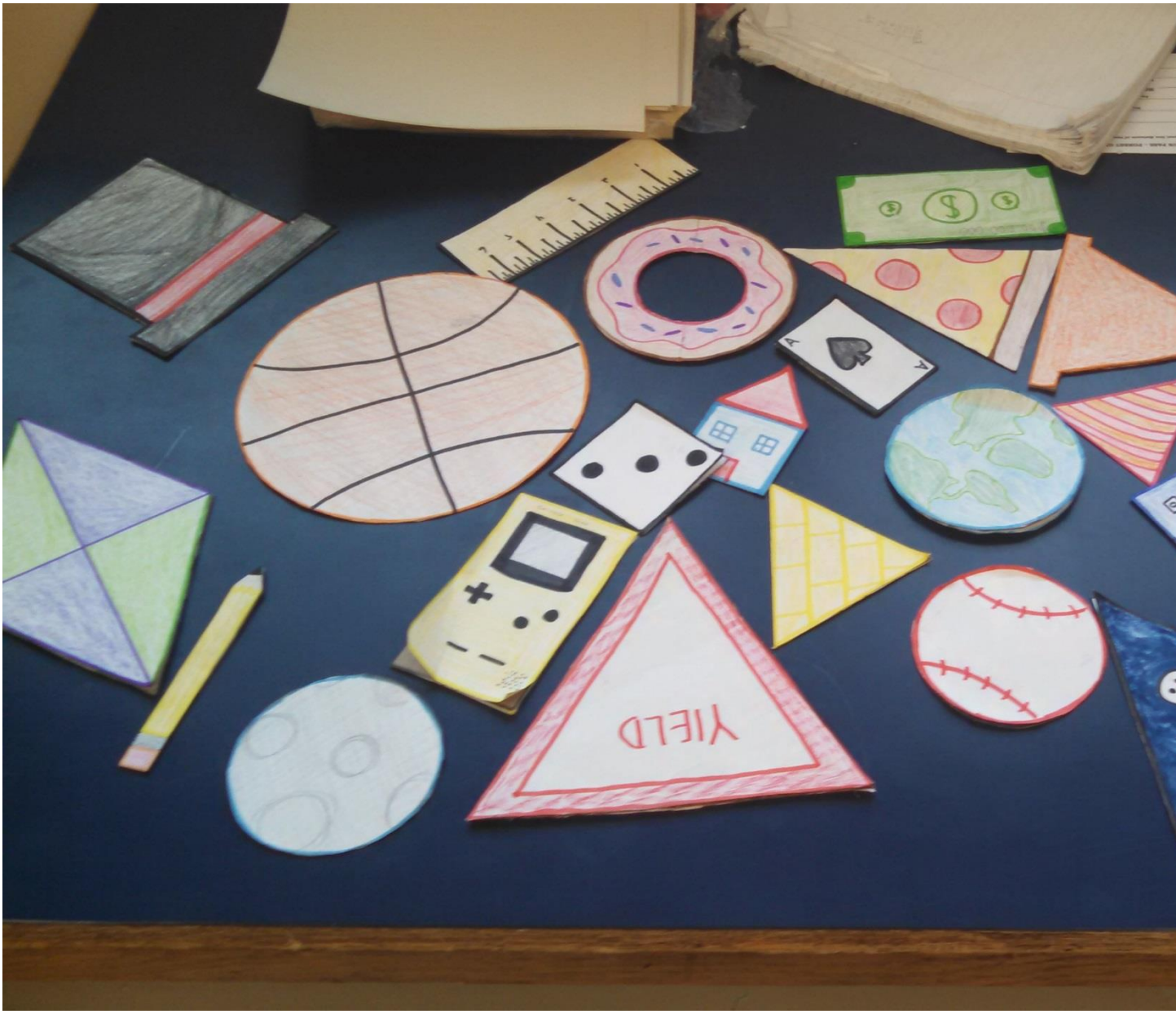
Coloring Worksheet



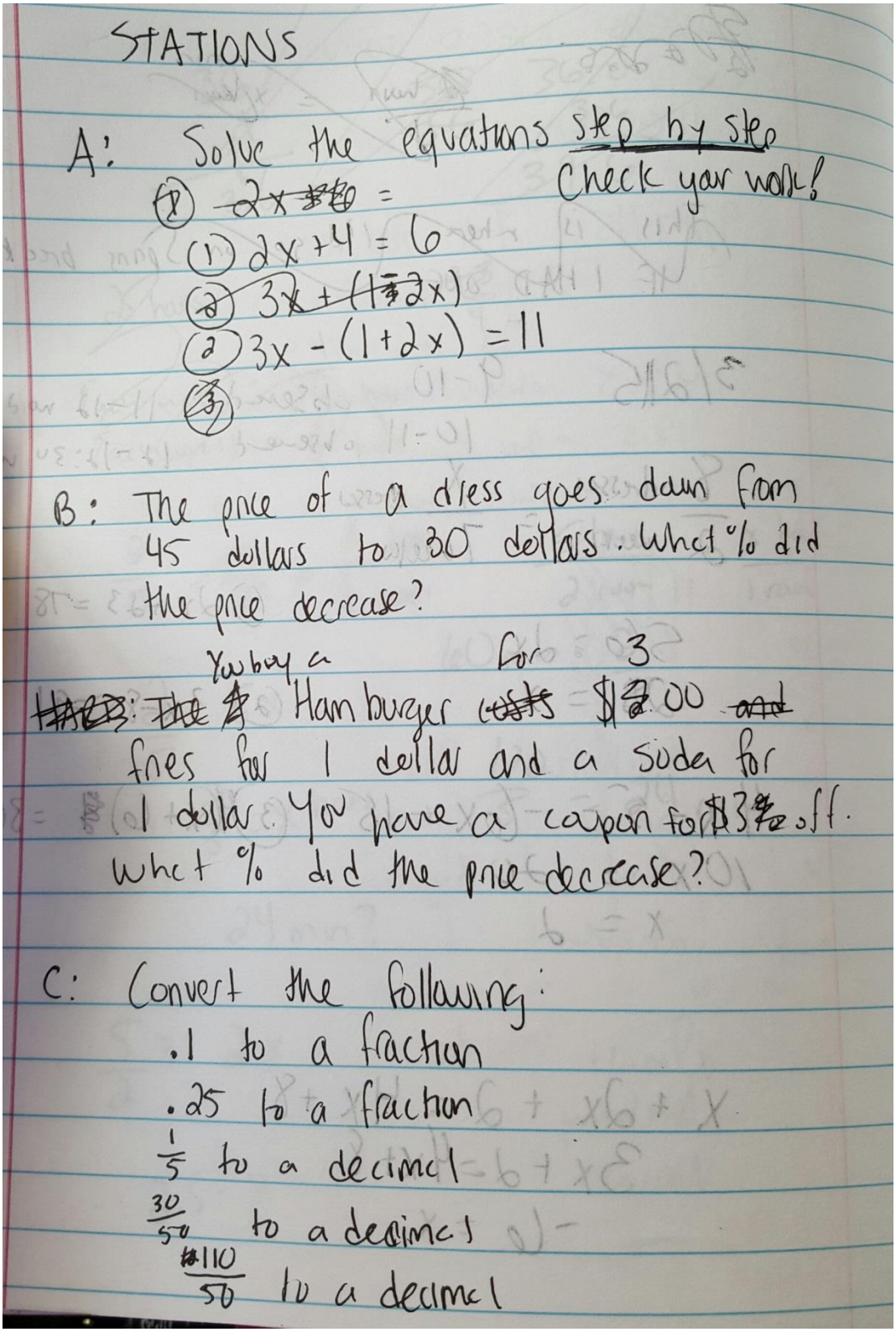



⇒ 4
○ ⇒ 7
1. -3 + 6
2. -7 - -3
3. 3/4 + 1/2
4. 5.6 - 3.72
5. 16 - 7
6. 5/8 + 3/6
7. 2.61 - 3
8. 100 - 99
9. 80 + .35
10. 1/4 - 25/100
11. 5.61 rounded to nearest tenth
12. 7.135 rounded to nearest hundredth
13. 9.99 rounded to nearest one
14. 1/4 as a percent
15. 2/5 as a percent
Answers:
9 → Yellow
-0.39 → Blue
-4 → Green
0 → Yellow
10 → Green
3 → Green
40% → Purple
7.14 → Red
5/4 → Blue
1 → Pink
1.88 → Green
25% → Yellow
1 1/8 → Red
80.35 → Purple
5.6 → Yellow

Measuring Activity



Stations



STATIONS

A: Solve the equations step by step
Check your work!

(1) $2x + 4 = 6$

(2) $3x - (1 + 2x) = 11$

(3)

B: The price of a dress goes down from 45 dollars to 30 dollars. What % did the price decrease?

~~HARD~~: ~~The~~ You buy a Hamburger ~~costs~~ $2.00 ~~and~~ fries for 1 dollar and a soda for 1 dollar. You have a coupon for 3% off. What % did the price decrease?

C: Convert the following:

.1 to a fraction

.25 to a fraction

$\frac{1}{5}$ to a decimal

$\frac{30}{50}$ to a decimal

$\frac{110}{50}$ to a decimal

D: ~~Subs~~ Let $x = 4$ $y = 7$ $z = -1$

Substitute and evaluate:

(1) $z(x + y)$

(2) $xz + yz$

(3) $z^2 + y - x$

~~(4)~~

E: Find the GCF and LCM of

~~42 and 48~~ 48 and 16

~~50 and~~

~~$~~22 and 36

F: Compute

$$3\tfrac{2}{3} - 1\tfrac{4}{9}$$

$$\frac{7}{12} + \frac{1}{5}$$

100
95
90
97
382

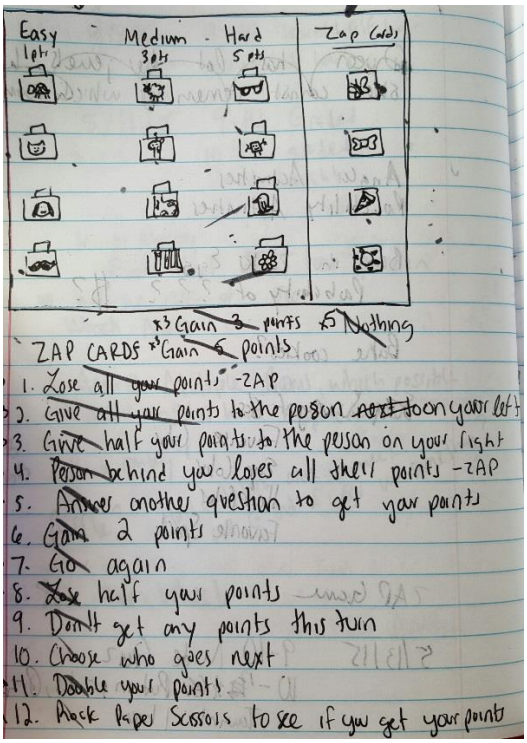
$382 \div 4 = 95$, remainder 2

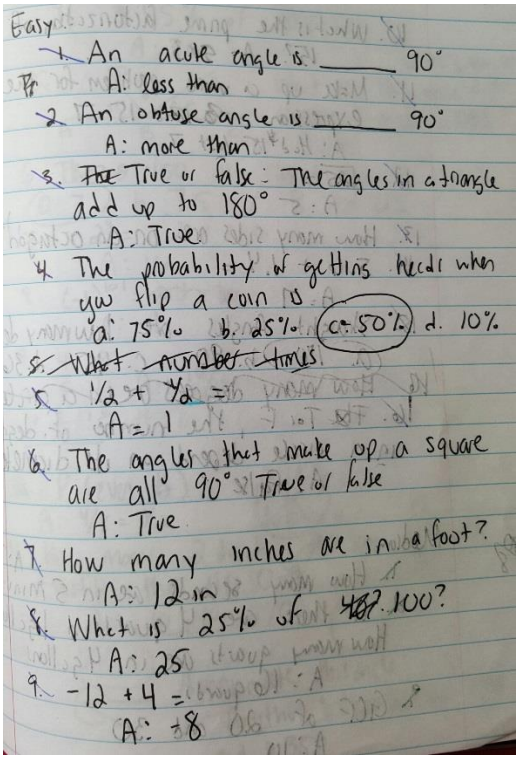
G: Stacy has test scores of 90, 95, 100, and 97.

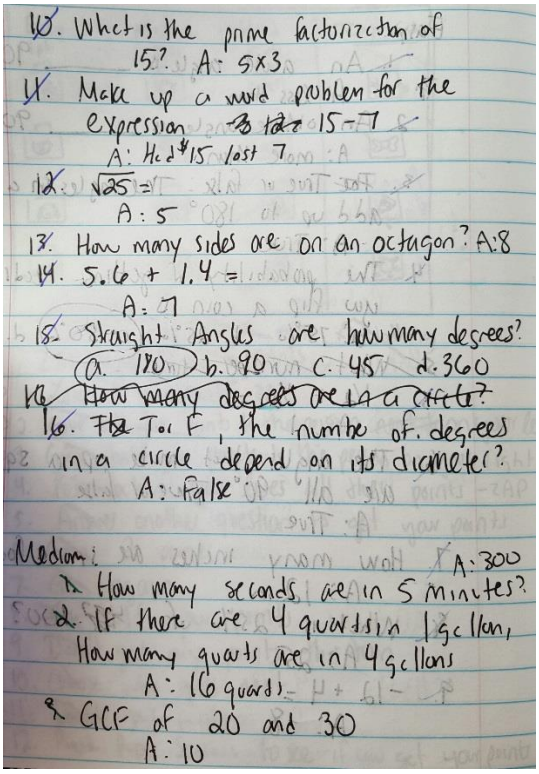
Her parents told her if she gets an average of ~~96~~ 99 ~~she can get~~ they will get her a dog. What test score does she need on her last test to get a dog?

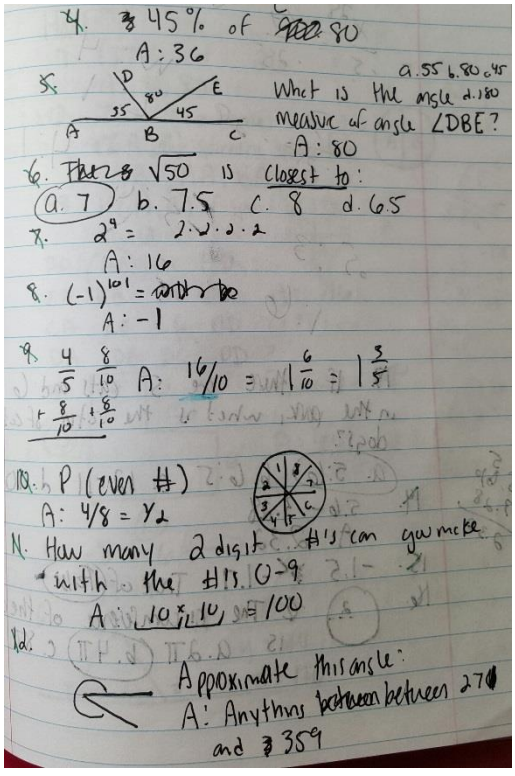
Games

ZAP


Easy
1 pt
Medium
3 pts
Hard
5 pts
Zap Cards
x3 Gain 3 points
Nothing
ZAP CARDS x3 Gain 5 points
1. Lose all your points -ZAP
2. Give all your points to the person on your left
3. Give half your points to the person on your right
4. Person behind you loses all their points -ZAP
5. Answer another question to get your points
6. Gain 2 points
7. Go again
8. Lose half your points
9. Don't get any points this turn
10. Choose who goes next
11. Double your points
12. Rock Paper Scissors to see if you get your points


Easy
1. An acute angle is ____ 90°
A: less than
2. An obtuse angle is ____ 90°
A: more than
3. True or false: The angles in a triangle add up to 180°
A: True
4. The probability of getting heads when you flip a coin is
a. 75% b. 25% c. 50% d. 10%
5. ½ + ½ =
A = 1
6. The angles that make up a square are all 90° True or false
A: True
7. How many inches are in a foot?
A: 12 in
8. What is 25% of 100?
A: 25
9. -12 + 4 =
A: -8


10. What is the prime factorization of 15? A: 5x3
11. Make up a word problem for the expression 15-7
A: Had $15 lost 7
12. √25 =
A: 5
13. How many sides are on an octagon? A: 8
14. 5.6 + 1.4 =
A: 7
15. Straight Angles are how many degrees?
a. 180 b. 90 c. 45 d. 360
16. How many degrees are in a circle?
16. T or F, the number of degrees in a circle depend on its diameter?
A: False
Medium:
A: 300
1. How many seconds are in 5 minutes?
2. If there are 4 quarts in 1 gallon, How many quarts are in 4 gallons
A: 16 quarts
3. GCF of 20 and 30
A: 10


4. 45% of 80
A: 36
5. What is the angle measure of angle ∠DBE?
a. 55 b. 80 c. 45 d. 180
A: 80
6. √50 is closest to:
a. 7 b. 7.5 c. 8 d. 6.5
7. 2⁴ = 2·2·2·2
A: 16
8. (-1)¹⁰¹ =
A: -1
9. 4/5 8/10 A: 16/10 = 1 6/10 = 1 3/5
+ 8/10 + 8/10
10. P (even #)
A: 4/8 = ½
11. How many 2 digit #'s can you make with the #'s 0-9
A: 10 x 10 = 100
12. Approximate this angle:
A: Anything between between 270 and 359

Hard:

1. 157% of 26
   A: 40.82
2. List all outcomes of spinning spinner twice
   A: AB, AA, BA, BB
3. P(A,B) if spin twice
   AA AB AC AD
   BA BB BC BD
   CA CB CC CD
   DA DB DC DD
   A: 1/16
4. Perimeter = 44'
   A: 44'
5. $-8 + 6 = -2 + 11 = 7$
   A: 4
6. A: x = 60, y = 120, z = 120

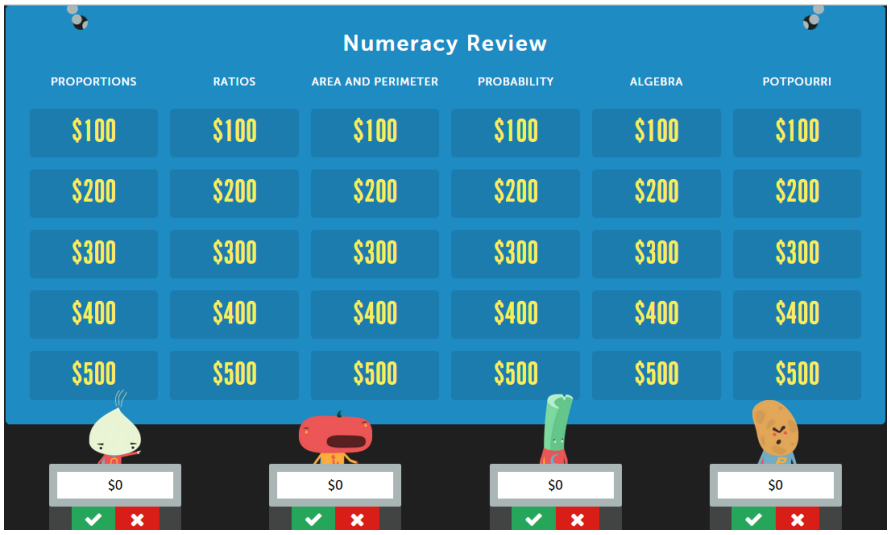
7. $\frac{7}{8}$ of 66 = 231 = $57\frac{3}{4}$
8. If there are 3 red marbles for every 8 blue marbles and there are 64 blue marbles how many red marbles are there?
   A: 24
9. If Jen's test scores are 83, 79, 85 and 92, what test score does she need for an average of 87?
   $\frac{83+79+85+92+x}{5} = 87$
   $339 + x = 435$
   A: $x = 96$
10. If the Area of a circle is 78.5, what is its radius?
    A: 5
11. A: 72

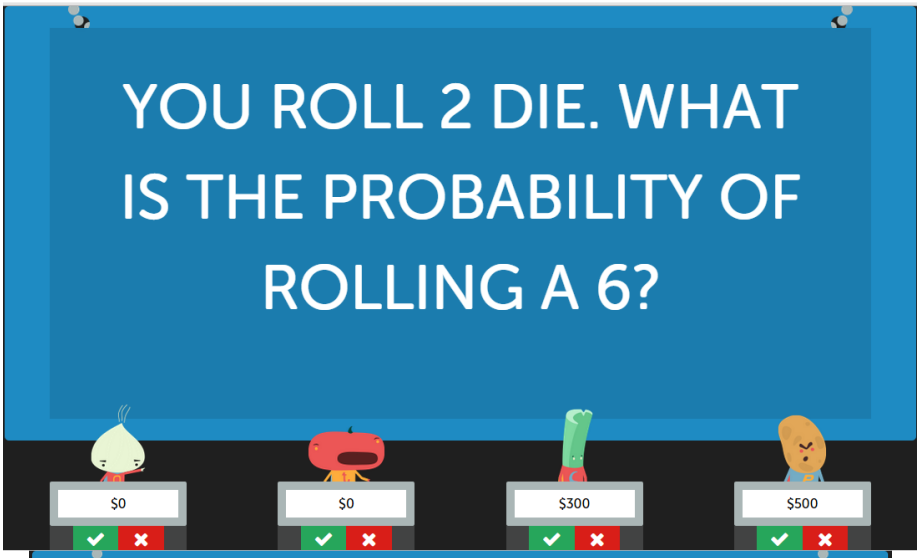
12. How many 3 digit numbers can you make with the numbers 1-5 if you cannot repeat numbers?
    5 4 3 = 60 : A
13. $3.67 \times 9.81 =$ A: 36.0027 rounded to nearest tenth
14. Round 10.999 to the nearest hundredth
    A: 11
15. Area and Circumference
    T or F
    The Area will be less than the circumference
    A: False
16. What is the Area?
    $8^2\pi = 64\pi$
    $2^2\pi = 4\pi$ A: 60π

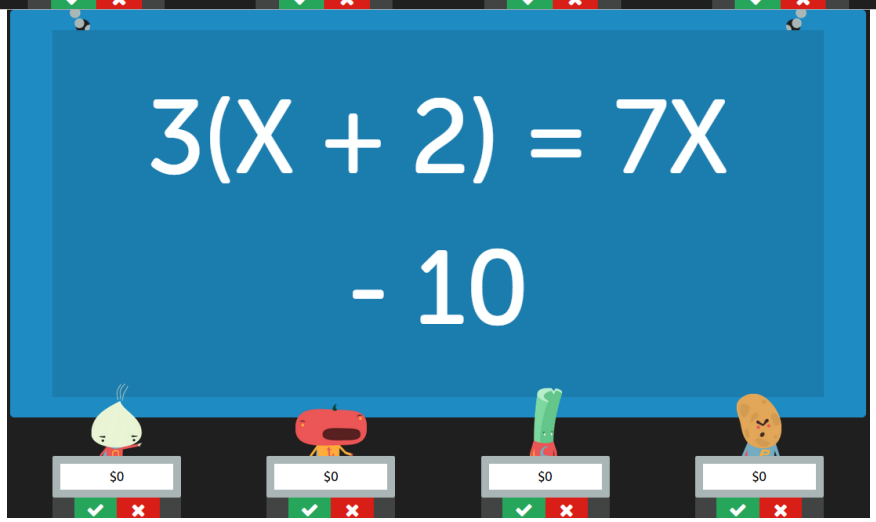

MILD
HOT
ZAP
times table
DUCHENE


MILD
MEDIUM
HOT
ZAP

Jeopardy

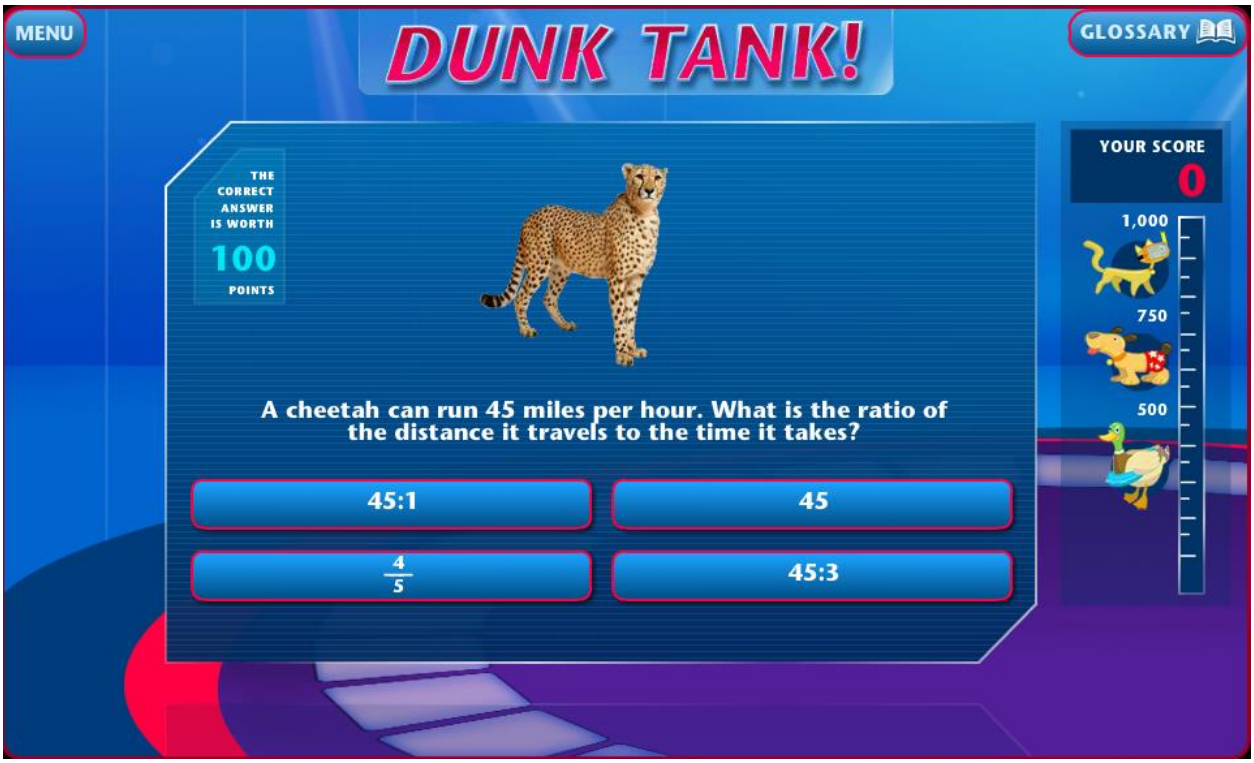

Numeracy Review
PROPORTIONS
RATIOS
AREA AND PERIMETER
PROBABILITY
ALGEBRA
POTPOURRI
$100
$200
$300
$400
$500
$0


YOU ROLL 2 DIE. WHAT IS THE PROBABILITY OF ROLLING A 6?
$0
$300
$500

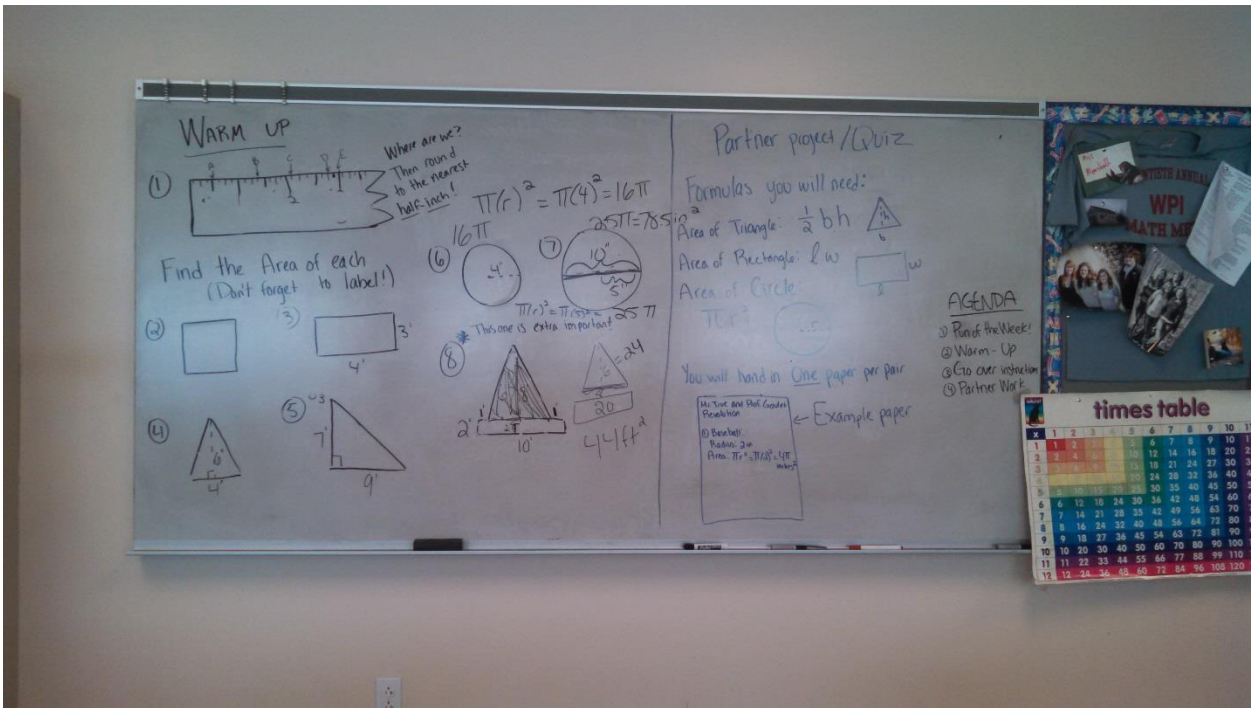

3(X + 2) = 7X - 10
$0

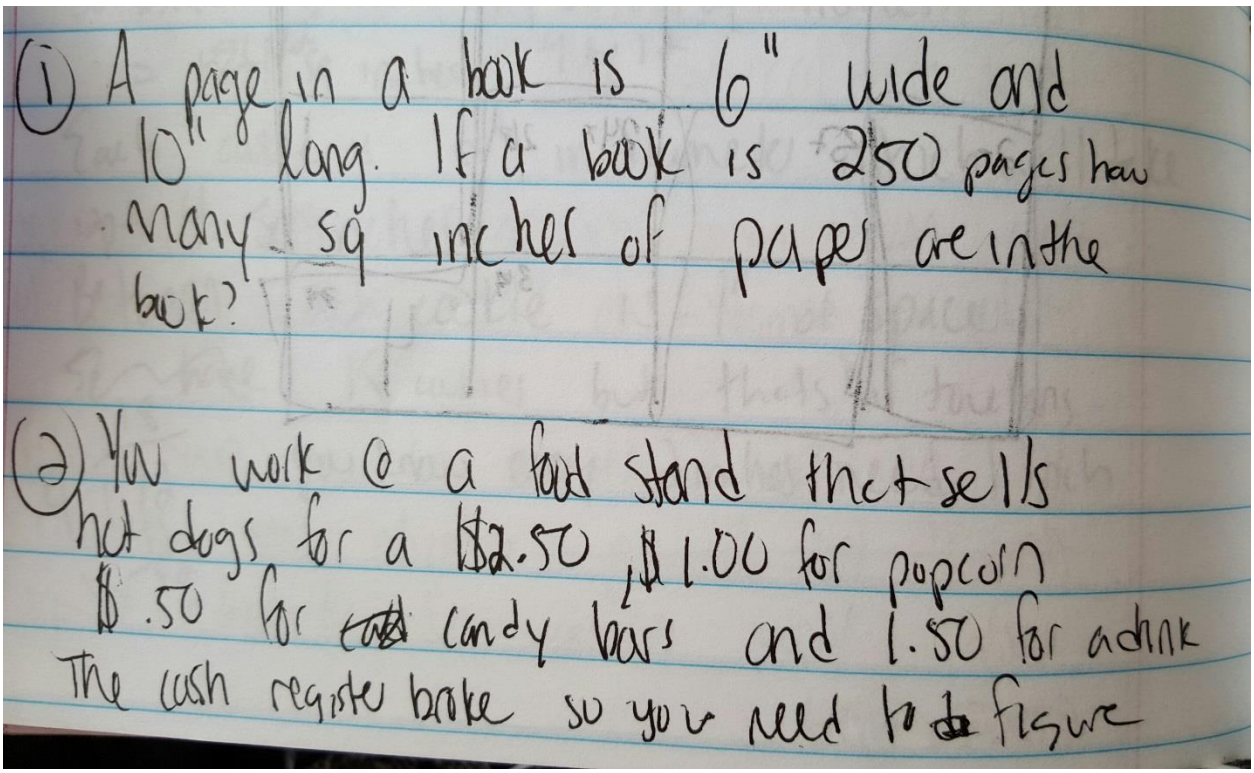
Dunk Tank


MENU
How the game show works
Intro to Ratio
Intro To Proportion
Cross Multiply and Divide
The Great Stringdini video
DUNK TANK!
GLOSSARY


MENU
DUNK TANK!
GLOSSARY
THE CORRECT ANSWER IS WORTH
100
POINTS
A cheetah can run 45 miles per hour. What is the ratio of the distance it travels to the time it takes?
45:1
45
4/5
45:3
YOUR SCORE
0
1,000
750
500

Board Problems/Worksheet Problems

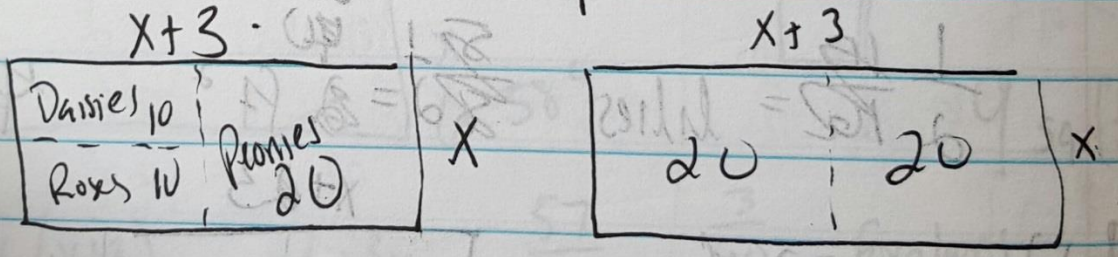




Garden that is 3 ft longer than it is wide

1/4 of the area is covered by daisies
1/4 of the area is covered by roses
There are 20 sq ft left in the garden, and it is covered by peonies

What is the area and perimeter?



Area = 40 sq ft Perimeter = 26 ft

3. $7 + 3(x - \frac{2}{3}) = x$

$7 + 3x - 2 = x$

$5 + 3x = x$

$2x = -5$

$x = \frac{-5}{2}$

4. $10 - 2^3(x-3) = 7x+10$

$10 - 8x + 24 = 7x + 10$

$34 - 8x = 7x + 10$

$24 = 15x$

$\frac{8}{5}\ \frac{24}{15} = x$

5. $.5x + 1.5x = 3(x+6)$

$2x = 3x + 18$

$-18 = x$

6. $x + 20 = 5(1+4$

$x + 20 = 5 + 20x$

$15 = 19x$

$\frac{15}{19} = x$

7. $\frac{1}{2}x - \frac{1}{4}x = 3+9$

$4(\frac{1}{4}x) = (12)4$

$x = 48$

8. $12x - 4^2x = 4$

$12x - 16x = 4$

$-4x = 4$

$x = -1$

9. $\frac{3}{8}x + \frac{5}{8}(x+8) = -x+4$

$\frac{3}{8}x + \frac{5}{8}x + 5 = -x + 4$

$x + 5 = -x + 4$

$2x = -1$

$x = \frac{-1}{2}$

~~123~~ You have a ~~A~~ three digit number

The number in the ones place is the

321 first prime number. The number to the left

is the ~~first numb~~ # in the ones place

plus 1. The number in the hundreds

place is one plus the previous number

You have a 13 digit number. All

842 the ~~numbe~~ digits are even The biggest

digit is 8 and it is in the highest place

value. The next two numbers are the previous

number divided by two

585 You have a 3 digit number. The number

in the tens place ~~is~~ is an even number

whose ~~factor~~ prime factorization is

2x2x2. The numbers to the right and left

are both the middle ~~nu~~ number minus

3/8 of the middle number.

* some number divided by 8 equals 9

put on board $\frac{x}{8} = 9$ $x = 72$

** some number plus 10 minus 2 plus some number times 3 minus $\frac{1}{2}$ some number divided by 2 equals 7

put on board $x + 10 - 2 + 3x - \frac{1}{2}x = 7$

$4x - \frac{1}{2}x + 8 = 7$

$3.5x = -1$

$x = \frac{-1}{3.5}$

** of some number minus 2 plus 4 plus the quantity of some number plus 7 is 12

$3x - 2 + 4 + (x + 7) = 12$

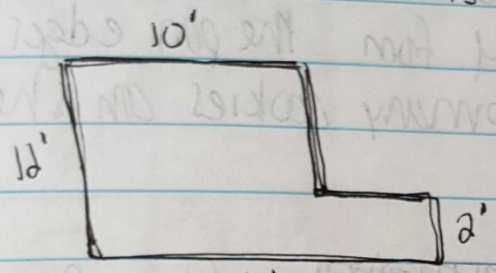
$3x + 2 + x + 7 = 12$

$4x + 9 = 12$

$4x = 3$

$x = 3/4$

(3) Mr. True is redoing the floors in his living room which is shped like this



Without doing any calculations, Which flooring is the cheapest, and which is the most expensive, how do you know?

His options for flooring are:

(1) Carpet → costs $3 per sq ft

(2) Hardwood → costs $5 per sq ft

(3) ~~Tile~~ → Marble → costs $10 per sq ft

How much does each type of flooring cost?

How much more expensive is the most expensive flooring compared to the least expensive flooring?

If Mr. True wants to put up crown molding, ~~around his living~~ which cost 20 cents an inch, how much would it cost? ~~to~~ put

(a) out change in yar head. Someone buys 2 hot dogs and a soda and they hand ya 5 dollas. How much change do they give ya?

(b) Someone buys a hot dog, popcorn, a soda and a candy bar, ~~how much~~ and gives ya a twenty, how much change do ~~you~~ they get?

(c) Someone buys a popcorn, 3 candy bars and a soda and hands ya $3.50, what do ya tell them?

(3) You are at a restaurant with a friend and the bill comes to $35.00, you went to split the bill and gives a 15% tip. How much money do you put towards the bill?

(4) You are at ~~an REI~~ Home Depot looking at grills. The salesperson tells you that one grill ~~it~~ is $500 but is on sale for 18% off. ~~There~~ There is another grill that costs

Rounding Problems

Round to the nearest TENS place

23.199 109.06 16.2

Round to the nearest ONES place

5.99 7.01 4.72

Round to the nearest ~~hundredths~~ TENTHS place

17.2007 1000.101 3.14159 5.27

Round to the nearest HUNDREDTHS place

100.012 48.298 64.372 96.045

Round to the nearest thousandths place

1.23456 6.7239 10.10403

If we want to ~~put some~~ convert these numbers into money, what decimal place do we round to?

If Reece ~~he~~ can ~~take~~ shovel two driveways in 4 hours, how many driveways can he shovel in 8 hours? $\frac{2d}{4h} = \frac{x}{8}$ $x = \frac{16}{4} = 4$

If Michael can shovel 4 driveways in 3 hours, how many driveways can he shovel in 7 hours $\frac{4d}{3h} = \frac{x}{7h}$ $x = \frac{28}{3} = 9\frac{1}{3}$

If Michael charges $30 to shovel 2 driveways, how much does he charge to shovel 4 driveways?

What is the unit rate that he charges per driveway? $\frac{30}{2} = \frac{x}{4}$ $x = \frac{120}{2} = 60$

$\frac{30}{2} = \frac{x}{1}$ $x = \frac{30}{2} = 15$ unit

b) Reece charges ~~$20~~ 55 to shovel 4 driveways, how much does he charge to shovel ~~6~~ 3 driveways?

What is the unit rate that he charges per driveway? $\frac{55}{4} = \frac{x}{3}$ $\frac{165}{4} = 41.25$ for 3

55 ÷ 4 = 13.75 unit

Fill in with <, >, =

~~Are Say whether each of the angles~~

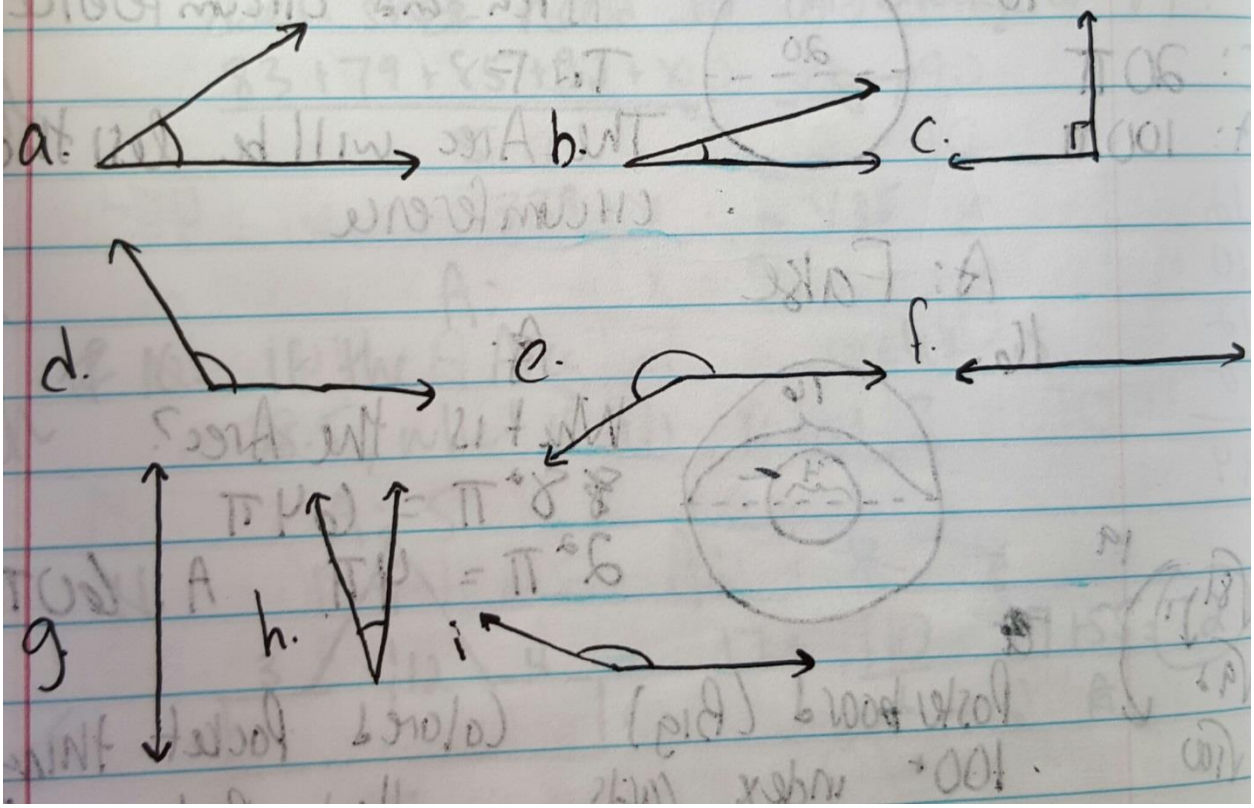
Acute angles are ____ 90°

Obtuse angles are ____ 90°

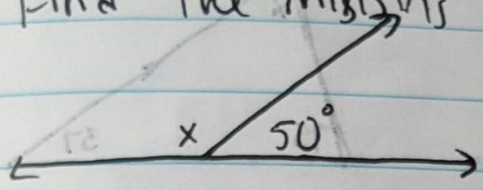
Right angles ~~are~~ ____ 90°

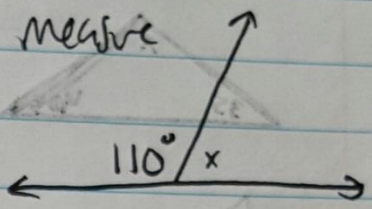
Straight angles ____ 90

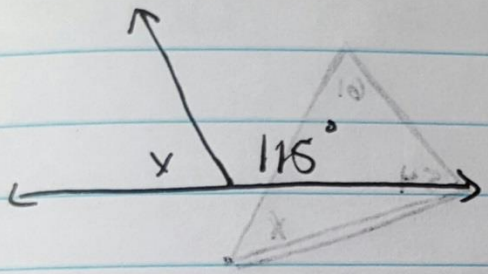
1 State whether each of the below angles are Acute, Obtuse, Right or Straight

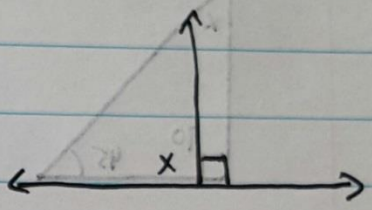


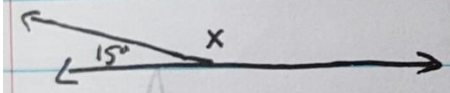
Approximate how many degrees each of the angles are from question 1
Find the missing angle measure

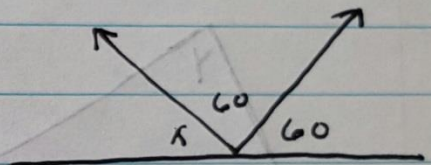


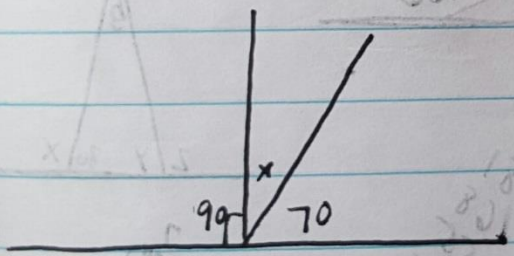


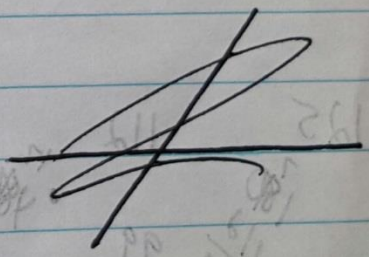


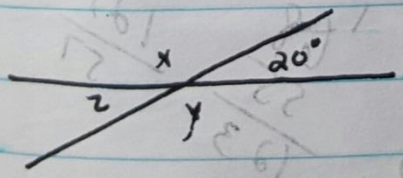


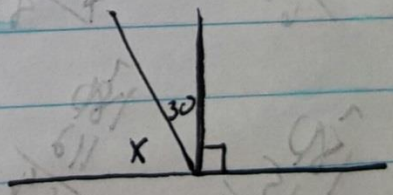






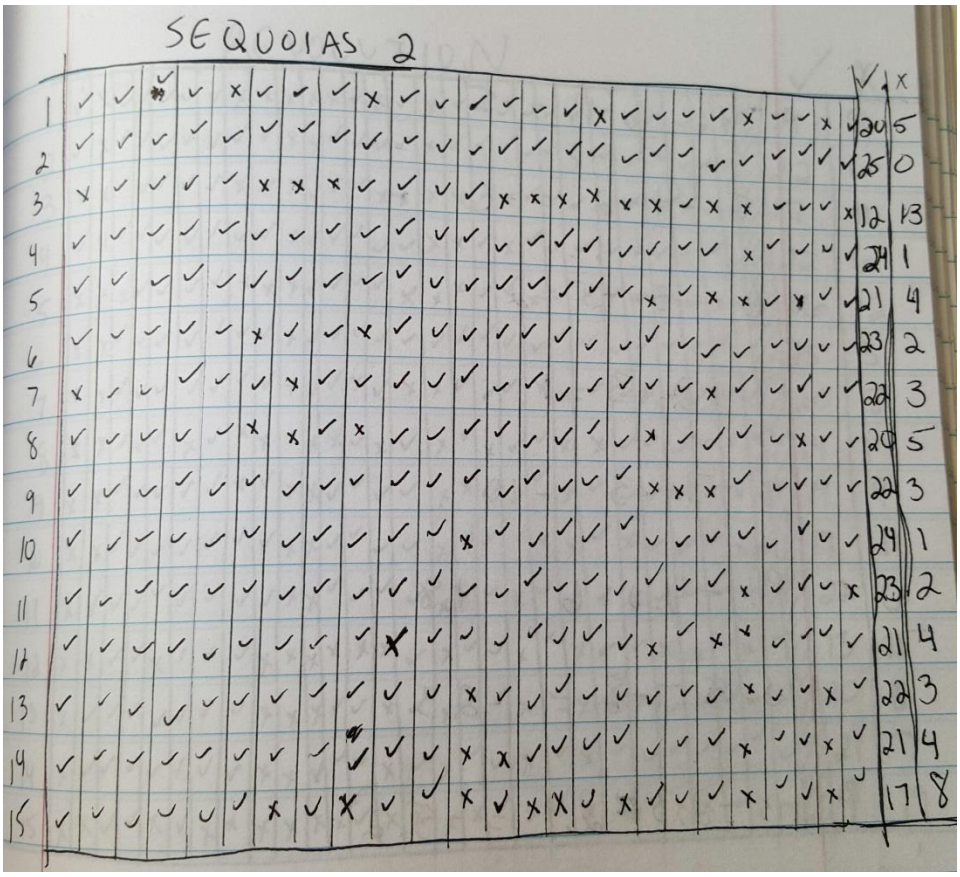


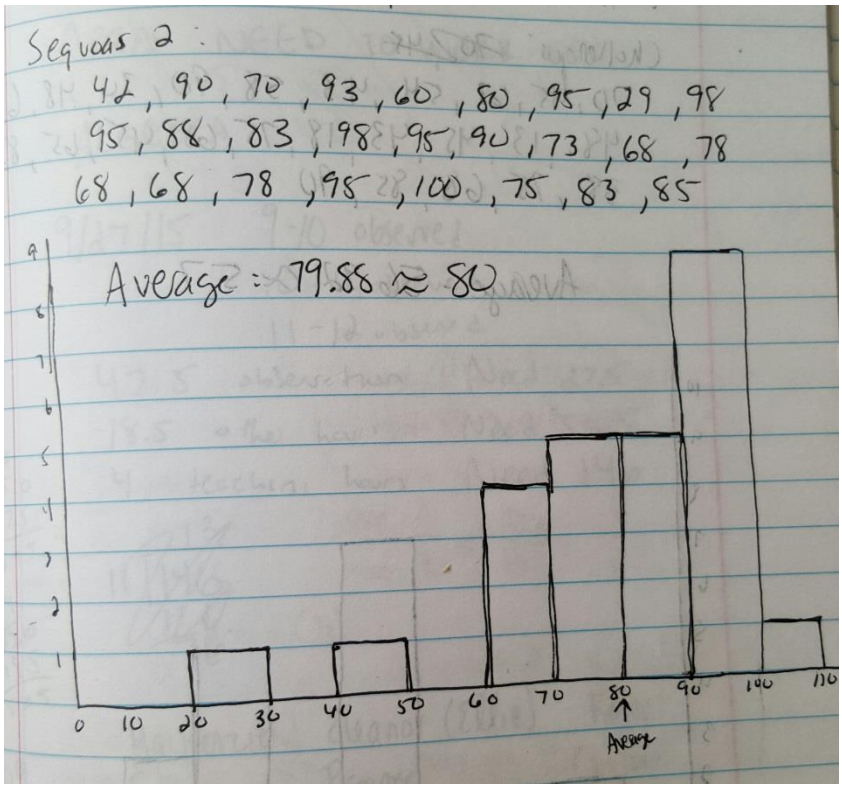




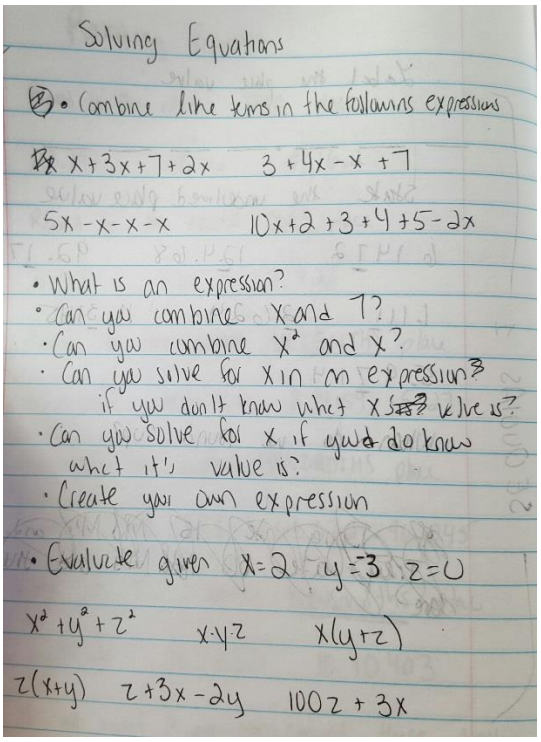
Complementary Angles add up to ____ dea
Supplementary angles add up to ____ degree

Grade Analysis





Lessons



Solving Equations

- Combine like terms in the following expressions

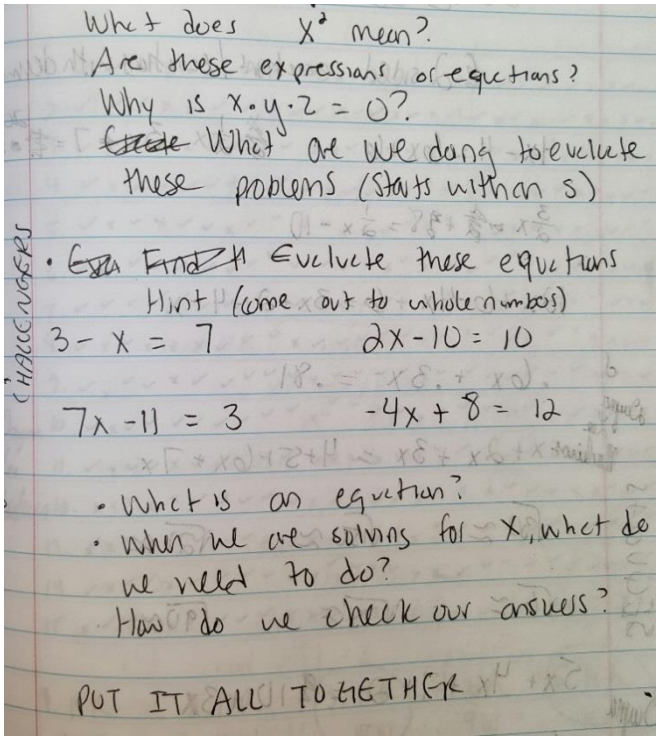
$x+3x+7+2x$ $3+4x-x+7$

$5x-x-x-x$ $10x+2+3+4+5-2x$

- What is an expression?
- Can you combine x and 7?
- Can you combine x^2 and x?
- Can you solve for x in an expression if you don't know what x's value is?
- Can you solve for x if you do know what it's value is?
- Create your own expression
- Evaluate given $x=2$ $y=-3$ $z=0$

$x^2+y^2+z^2$ $x \cdot y \cdot z$ $x(y+z)$

$z(x+y)$ $z+3x-2y$ $100z+3x$



What does x^2 mean?

Are these expressions or equations?

Why is $x \cdot y \cdot z = 0$?

What are we doing to evaluate these problems (starts with an s)

CHALLENGES

- Evaluate these equations

Hint (come out to whole numbers)

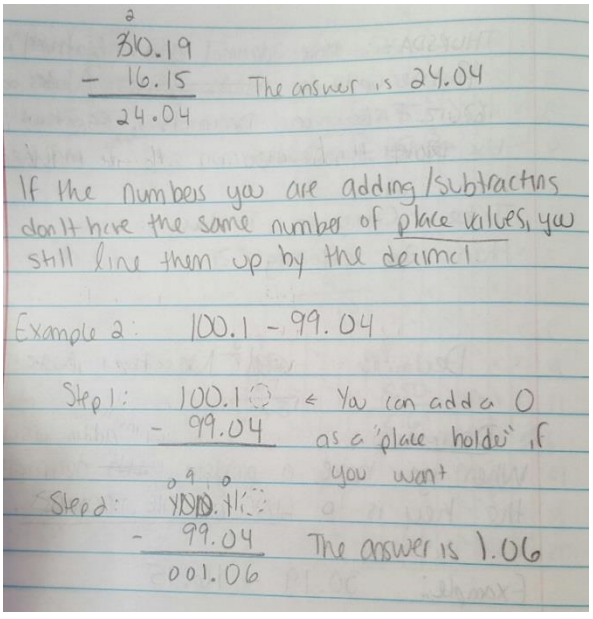
$3-x=7$ $2x-10=10$

$7x-11=3$ $-4x+8=12$

- What is an equation?
- When we are solving for x, what do we need to do?

How do we check our answers?

PUT IT ALL TOGETHER



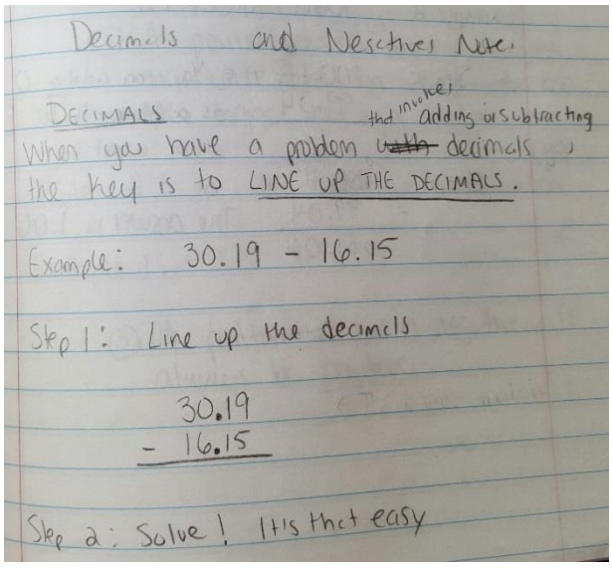
$30.19 - 16.15 = 24.04$ The answer is 24.04

If the numbers you are adding/subtracting don't have the same number of place values, you still line them up by the decimal

Example 2: $100.1 - 99.04$

Step 1: $100.1 - 99.04$ ← You can add a 0 as a 'place holder' if you want

Step 2: $100.1 - 99.04 = 001.06$ The answer is 1.06



Decimals and Negatives Note.

DECIMALS

When you have a problem that involves adding or subtracting decimals, the key is to LINE UP THE DECIMALS.

Example: $30.19 - 16.15$

Step 1: Line up the decimals

$30.19 - 16.15$

Step 2: Solve! It's that easy