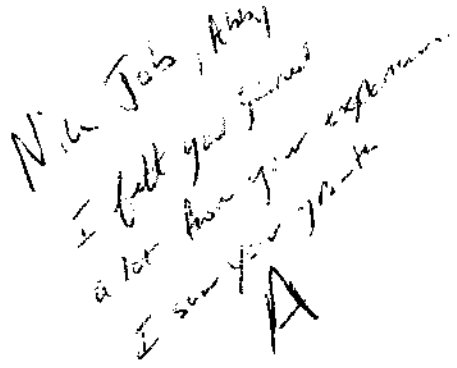
Teacher: Mr. Duncan

September 25, 2008

Methods: Field Experience Observation Log

Items needed in the log:

- Preface – explain where you worked, what you did, and what (generally speaking) you learned
- A write-up concerning each class/lesson that is observed or taught. A write up should include the following:
    - Cooperating Teacher
    - Date
    - Class Title
    - Class Time
    - Topic of the Lesson
    - A Summary of Teaching Techniques Used
    - A Summary of Classroom Management Strategies Used
    - A Summary of Other "Interesting" Observations
    - Attach All Handouts
- A personal reflection about each day. Things you might include in your reflection:
    - What you liked
    - What you would do differently
    - What strategies worked
    - How your philosophy of education would impact how you would construct the lesson
    - Conversations you had throughout the day with students and teachers



Preface Abby Dutch

My field experience began at Hillsborough Middle School, then I went to Hillsborough High School for a day, and I spent the rest of the time at ConVal High School. I had many cooperating teachers throughout my experience and got to see many different classrooms. I saw aspects that I liked along with many that I did not. Overall I was able to learn a lot from all the teachers I observed.

Starting at Hillsborough Middle School I was able to work with seven different teachers. Ms. McNally teaches two algebra 1 classes. In her classes I mainly walked around and helped any students who had questions and those I saw that were making mistakes. In her class I learned how important it is to question the students on everything they were doing mathematically. Ms. Rawson also teaches two algebra 1 classes. I walked around her classroom and helped any students that were having difficulties. I also team taught a few of her classes with Amanda Benware. In Mr. Duncan's fractions class I either observed or taught. In Ms. Amitrano's, Ms. Guerrio's, Mr. Carr's, and Mr. Bobinsky's classes I helped students that were having trouble. I completed twenty-five hours in the middle school and then I went to the high school to observe another fifteen.

I went to Hillsborough High School for one day. In this day I observed Ms. McHugh's algebra 1 class and Ms. Plator's algebra 2 class. In both of these classes I just observed how the teachers ran their class. After this I went to ConVal High School to finish up the rest of my hours. I observed Ms. Ryan's two algebra 1 classes. In her classes I walked around and helped any students that were having trouble. I also went over a quickie quiz with one of her classes. I was able to see a lot of great activities and teaching in Ms. Ryan's classroom.

From all these different experiences I have walked away knowing I am going to struggle with classroom management but if I am strict at first students are more apt to respect me. I also have gained from my experiences an increasing excitement about accomplishing the one goal that I have had my whole life, and that is to become a mathematics teacher. I know that I have gained a lot of knowledge and taken away a lot of great ideas and techniques to use in my own classroom. I cannot wait for student teaching in the spring so I can gain more knowledge and experience teaching.

Cooperating Teacher: Ms. McNally, Kim Rawson, and Ms. Robinson
Date: September 30, 2008
Class Title: Algebra 1
Class Time: 8:00, 8:50, 9:40
Topic of the Lesson: Exponents (first two classes), and solving inequalities
Summary of Teaching Techniques Used: All the teachers used lots of classroom involvement, and questioning. They all began with a class starter which was either a review or a quiz of previous material.
Summary of Classroom Management Strategies Used: In Ms. McNally's class she would ask the students to be quiet but there was no real structure because some kids would talk when she was talking. In Ms. Rawson's class, she would tell the students to be quiet if they were loud but she got off subject often and then the students would get out of hand. In Ms. Robinson's class, the students knew to be quiet. She did let the students talk at the same time as her.
Summary of Interesting Investigations: Ms. Robinson incorporates the properties into different topics. That way the students will be familiar with them when they get into the higher math classes.

Ms. McNally's Class
The first classroom that I went to was Ms. McNally's. I really liked the set up of the tables. Ms. McNally's desk was in the middle of two rows of tables and another table in the middle in front of her desk. Ms. McNally seemed to give the students a lot of help but wanted them to have success. At times I felt she gave the students too much help. She allowed them to redo their exam because no one did well. I liked how she really involved the class by asking them lots of questions. I thought that the discipline could have been better because the students were all pretty talkative when Ms. McNally was going over material.

Ms. Rawson's Class
The second class I went into was Ms. Rawson's. I did not like the way she set up the tables. The classroom was set up so there were four rows and in the last row the teacher had the only two eighth graders sit in a seventh grade dominant class. The eighth graders seemed to be separated from the rest of the class and they were the ones having the most trouble. Ms. Rawson and other students referred to these kids as the eighth graders. If it was my class I would have assigned seats so that the eighth graders were intermingled with the rest of the class. I liked the class starter that the teacher did. She took a problem from their homework and had the students show all of their work in order to get credit. I liked how Ms. Rawson walked around the room when the students were working on a handout in order to assess where they where. At times I felt the teacher went a little fast for the two struggling students in the back of the room. I think that if they had been sitting next to other students who were not struggling they would do better. I liked how the teacher had an agenda on the board so the students knew what they would be doing that period. I think this alleviates students' questions about the schedule.

Ms. Roberts's Class

In the third class I thought it was intimidating how the teacher ran her classroom. It was as if you were in a court room and the teacher was the judge. I thought it was really neat how the teacher introduced the different properties of numbers as a way of explaining the steps that they were using when solving inequalities. I also thought that it was pretty interesting how Ms. Roberts would have the students put the answers to their homework on the board and then she would circle the answers that she did not agree with and then those students who put the answers up could bring a buddy up to the board with them to act as their judge as they put each step on the board. The teacher would even circle problems that were correct as a way to encourage the students that they were doing well. The classroom was set up very interesting. It was almost in a "w" shape. I would have put the sign out near the door so the students would not walk in front of the teacher when she was teaching.

Name_____ Algebra A Quiz Functions and Linear Graphing

Find the slope of the line that passes through each pair of points.

(0, 1) (3, 4) _____ (4, -4) (2, 2)_____ (1, 2) (3, 2)_____ (2,- 2 (2, -3)_____

(3, 1) (6, 3) _____ (4, 3) (2, 4)_____ (-4, 4) (5, 4)____ (3, -5)(1, 1) _____

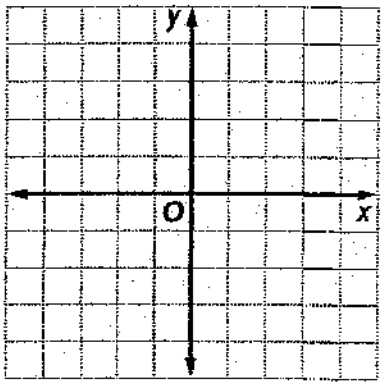
Write a rule for the function represented by the table_____

INPUT, X	-1	3	4	6
OUTPUT, Y	-5	15	20	30

Complete the function table, then graph the line.

$y = 2x - 1$

x	$2x - 1$	y	(x, y)
-1			
0			
1			
2			



For the function table above (y=2x-1) , identify the domain_____

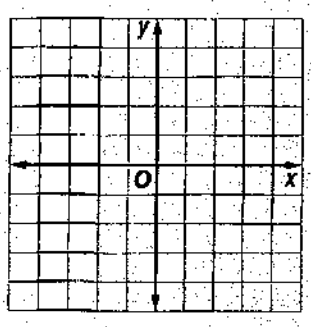
For the function table above (y=2x-1), identify the range _____

If you know the y-intercept of a line is 4 and that the slope is $-\frac{3}{2}$, how do you graph the line?

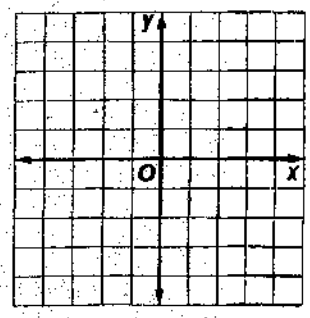
How can you find the slope and y-intercept of the graph x + y =8? (Explain in words).

Graph each equation using the slope and y-intercept.

4. $y = 2x + 2$

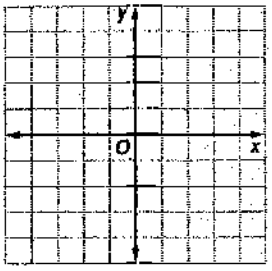


5. $y = x - 1$

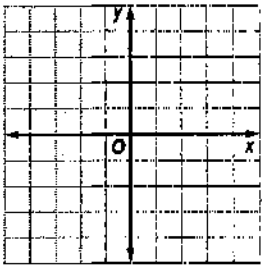


Explain and show why $\frac{-3}{-2}$ and $\frac{3}{2}$ represent the same slope.

Draw a line that has a negative slope.

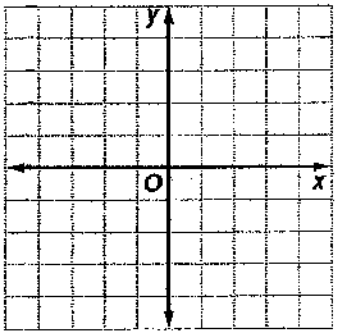


Draw a line that has a positive slope.

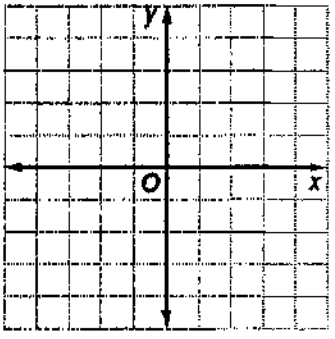


Use the "cover up" method to identify the x- intercept and the y-intercept and then graph the line.

x + 3y =6



3x -4y = 12



Rewrite

Algebraic Fractions name: _____

Division

* Remember to multiply by the reciprical and simplify!

1) $\frac{3m^2}{n} \div \frac{9m}{7m} =$

2) $\frac{10x^2y}{5y} \div \frac{30x^2y}{5y} =$

3) $\frac{59y}{9x} \div \frac{7y}{3x^2} =$

4) $\frac{49x^2z}{5y^5} \div \frac{7xz}{y^4} =$

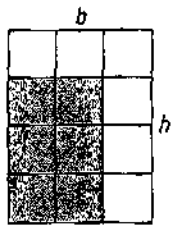
5) $\frac{22a^3}{7b} \div \frac{11a^2}{21b}$

6) $\frac{9x^2}{10y^2} \div \frac{3x}{14y^3}$

7) $\frac{24c}{5d} \div \frac{21}{20d^6}$

8) $\frac{50x^2}{9x} \div \frac{25yx^2}{18x^8}$

9) Make your own algebraic fraction and solve it.



3. The rectangle at the left has base b and height h.
   a. If all the small rectangles have the same dimensions, what is the area of the shaded region?
   b. What product of algebraic fractions is represented by the shaded area?

In 4 and 5, multiply the fractions.

4. $\frac{a}{7} \cdot \frac{b}{2}$

5. $\frac{x}{3} \cdot \frac{y}{z}$

6. *True or false.* $\frac{1}{5}n = \frac{n}{5}$.

7. Show that $\frac{4}{9}x$ is equal to $\frac{4x}{9}$.

8. *Multiple choice.* Which does not equal the others?
(a) $\frac{7t}{12}$ (b) $\frac{7}{12}t$ (c) $7t \cdot \frac{1}{12}$ (d) $\frac{7}{t} \cdot 12$

In 9–12, use the Equal Fractions Property to simplify each fraction.

9. $\frac{800}{1900}$

10. $\frac{20y}{5y}$

11. $\frac{3mn}{9mt}$

12. $\frac{24gr}{18gr^2}$

In 13–16, multiply and simplify the result.

13. $\frac{3m}{n} \cdot \frac{7m}{9}$

14. $\frac{6a}{b} \cdot \frac{b}{6a}$

15. $\frac{24c}{5d} \cdot \frac{20d}{21}$

16. $\frac{50}{9x} \cdot \frac{18x^2}{25y}$

"Community gardening" has become popular in big cities where backyards are not available for planting. Several families may share the work and the harvest of a city-owned plot.

Applying the Mathematics

17. **a.** One rectangle is half as wide and one-fourth as long as another rectangle. How do the areas of the two rectangles compare?
   b. Draw a figure to illustrate your answer.

18. The Marshall and Chen families have rectangular vegetable gardens. The length of the Marshalls' garden is $\frac{2}{3}$ the length and $\frac{1}{4}$ the width of the Chens' garden.
   a. How do the areas of the gardens compare?
   b. Check your answer by using a specific length and width for the Chens' garden.

19. *Skill sequence.* Compute in your head.
   a. $\frac{5}{3} \cdot 3$ **b.** $\frac{9}{x} \cdot x$ **c.** $\frac{a}{b} \cdot b$ **d.** $n^2 \cdot \frac{a}{n^2}$

In 20 and 21, *multiple choice.* Find the fraction that is *not* equal to the other three.

20. (a) $\frac{9a}{11a}$ (b) $\frac{99}{121}$ (c) $\frac{90}{100}$ (d) $\frac{450}{550}$

21. (a) $\frac{100}{260}$ (b) $\frac{35t}{91t}$ (c) $\frac{38}{100}$ (d) $\frac{500x^2}{1300x^2}$

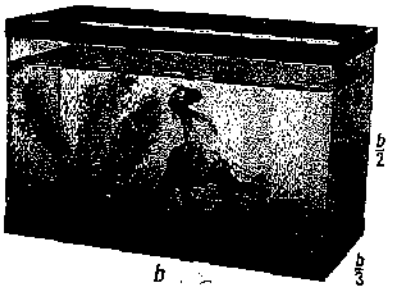
In 22–25, multiply and simplify where possible.

22. $\frac{a}{b} \cdot \frac{c}{d} \cdot \frac{e}{f}$

23. $\frac{a}{b} \cdot \frac{b}{c} \cdot \frac{c}{a}$

24. $\frac{22a^3}{7b} \cdot \frac{21b}{11a^2}$

25. $\frac{9x^2}{10y^2} \cdot \frac{14y^3}{3x}$



Acquiring aquariums. *When setting up a new aquarium, you should not overstock. The total length of all the fish in inches should be no greater than the number of gallons of water the tank will hold.*

26. a. Find the volume of the aquarium at the left.
    b. Check your answer by letting $b = 12$.
    c. Think of a cube with sides of length b. How many of these aquariums would fit into the cube? How can you tell?

27. Find two *algebraic* fractions that when multiplied yield $\frac{12x^2}{5y^3}$.

Review

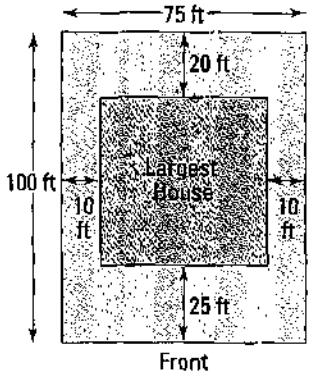
28. *Skill sequence.* Write the reciprocal of each number. *(Lesson 2-2)*
    a. 4 b. $\frac{1}{9}$ c. $\frac{4}{9}$

In 29 and 30, compute in your head using the Associative and Commutative Properties of Multiplication. *(Lesson 2-1)*

29. $2 \cdot 7 \cdot 4 \cdot 5$

30. $2.5 \cdot 4 \cdot 2 \cdot 9$

31. A single-story house is to be built on a lot 75 feet wide by 100 feet deep. The shorter side of the lot faces the street. The house must be set back from the street at least 25 feet. It must be 20 feet from the back lot line and 10 feet from each side lot line. What is the maximum square footage (area) the house can have? *(Lesson 2-1)*



32. *True or false.* *(Lesson 1-1)*
    a. $4x = 18$ if $x = 4.5$
    b. $-9y = 42$ if $y = -\frac{14}{3}$
    c. $\frac{4}{5}z = -96$ if $z = 120$
    d. $\frac{10}{3} = \frac{-15}{2}w$ if $w = \frac{-4}{9}$

Exploration

33. a. Calculate the following products.

$\frac{1}{2} \cdot \frac{2}{3}$

$\frac{1}{2} \cdot \frac{2}{3} \cdot \frac{3}{4}$

$\frac{1}{2} \cdot \frac{2}{3} \cdot \frac{3}{4} \cdot \frac{4}{5}$

    b. Write a sentence or two describing the patterns you observe.
    c. Predict the following products.

$\frac{1}{2} \cdot \frac{2}{3} \cdot \frac{3}{4} \cdot \ldots \cdot \frac{1996}{1997}$

$\frac{1}{2} \cdot \frac{2}{3} \cdot \frac{3}{4} \cdot \ldots \cdot \frac{n}{n+1}$

Word Problem Key Words

Addition	Subtraction
Sum Total Increase Together In all Both Altogether Increased by More than Combined Added to	Difference minus How much more How many are left Decrease Remainder How many more Increased by Decreased by How much left Less Difference between/of Less than Fewer than
Multiplication	**Division**
Product A piece Times Of How many How much Multiplied by Increased/decreased by a factor of (this can involve both addition or subtraction and multiplication) double = 2 triple = 3 twice a number = x^2 twice a number = x^3	Quotient How many times Average How many Shared equally Each Part of Per, a Out of Ratio of Percent (divide by 100)

Name Date

Variables and Equations

Problem Solving Using Equations

Set up and solve each equation.

The sum of twice a number and 21 is 83. Find the number.	**$2n + 21 = 83$** **$2n + 21 - 21 = 83 - 21$** **$2n = 62$** **$n = 31$** **The number is 31.**

1. Twice a number, diminished by 17 is -3. Find the number.

2. Six times a number, increased by 3 is 27. Find the number.

3. Three times the difference of 5 minus a number is 27. Find the number.

4. Karl's team score is 39 points. This was one point less than twice Todd's team score. Find Todd's team score.

5. The length of a rectangle is 6 feet more than twice the width. If the length is 24 feet, what is the width?

6. Four-fifths of the third grade went on a trip to the zoo. If 64 children made the trip, how many children are in the third grade?

7. The price of a pack of gum today is 63¢. This is 3¢ more than three times the price ten years ago. What was the price ten years ago?

8. The sum of three consecutive integers is 279. Find the integers.

9. The sum of two consecutive odd integers is 112. Find the integers.

10. Find four consecutive integers such that the sum of the second and fourth is 132.

11. Find three consecutive odd integers such that their sum decreased by the second equals 50.

Name Date

Variables and Equations

...More Problem Solving Using Equations

Set up and solve each equation.

The sum of two numbers is 52. The difference of the same two numbers is 20. Find the numbers.

x = one number
$x - (52 - x) = 20$
$x - 52 + x = 20$
$2x - 52 = 20$
$2x - 52 + 52 = 20 + 52$
$\frac{2x}{2} = \frac{72}{2}$
$x = 36$

$52 - x$ = second number
$52 - x = 52 - 36 = 16$

The numbers are 36 and 16.

1. One number is four times another. Their sum is 35. Find the numbers.

2. The sum of two numbers is 21. One number is three less than the other. Find the numbers.

3. The greater of two numbers is one less than 8 times the smaller. Their sum is 98. Find the numbers.

4. In a triangle, the second angle measures twice the first, and the third angle measures 5 more than the second. If the sum of the angles' measures is 180°, find the measure of each angle.

5. The length of a rectangle is 4 centimeters (cm) less than three times the width. The perimeter is 64 cm. Find the width and length.
(Hint: Perimeter = 2l + 2w)

6. The sum of three numbers is 64. The second number is 3 more than the first. The third number is 11 less than twice the first. Find the numbers.

7. Bill can type 19 words per minute faster than Bob. Their combined typing speed is 97 words per minute. Find Bob's typing speed.

Day 2

Cooperating Teacher: Ms. Amitrano, Ms. Rawson
Date: October 2, 2008
Class Title: Fractions, and Algebra 1
Class Time: 8:00, 8:50, 9:40
Topic of the Lesson: In the fraction class the students were working independently at stations, and in the algebra class they were working with exponents.
Summary of Teaching Techniques Used: In the fraction class the student's had to take a pre- test and then were expect to work through stations in order to pass their post- test and move onto decimals. In the algebra class the teacher started with a class starter which was a quiz over a few homework questions. Then she had the students play a game to reinforce their knowledge of exponents.
Summary of Classroom Management Strategies Used: In the first class the teacher had the students sit at separate tables and work individually. She did have to tell the students to be quiet. In the second class the teacher did not have any discipline problems.
Summary of Interesting Investigations: I thought that it was interesting how the teacher in the fraction class dealt with those students who did not know their times tables. She let them use a lattice to help them or told them to use their planner.

Ms. Amitrano's Class
Today I observed a fraction class. The students are required to complete a set of stations before they can move onto decimals. The students are given a timeline of when they are to complete each station. In each station they have a certain amount of worksheets they have to complete and then they are required to take a quiz over that material. If they pass they move onto the next station. There was one student in the class that was considered to be in special education. The teacher allows him to get extra help on his quizzes. The teacher also said that in order to avoid the other students questioning why that boy got extra help she would help the other students as well. I do not really agree with how the teacher handled the quizzes. If students are not able to complete them on their own they will never be able to pass the post test.

Ms. Rawson's Class
Lastly I observed an algebra class. The students played a game to review their homework because they had missed so many classes for testing. The students played a face off challenge. They were split into two teams, girls against guys. Each team would send one person to the face off table. Each person would work the problem out and if they were unsure of the answer they could have a life line, where another student could tell them if they agreed with their process. The students put their problems on the board after doing them out on their paper and the team with the correct answer got a point. The students really liked this and it allowed them to help their fellow peers as well. I think this is a good activity because all the students have to do the problem at once.

10/1 More Distributive Property and Simplifying Expressions

1. $3(x+8)$
2. $7(m+6)$
3. $-8(b+5)$
4. $-7(n+2)$
5. $-4(k+8)$
6. $(c-8)(-8)$
7. $-5(a-9)$
8. $(x-6)(-4)$
9. $2(a+b)$

Simplify each expression.

25. $3t + 6t$

26. $4r + r$

27. $7f - 2f$

28. $9a - 8a$

29. $5c + 8c$

30. $2g - 5g$

31. $8k + 3 + 4k$

32. $7m - 5m - 6$

33. $9 - 6x + 5$

34. $7p - 1 - 9p + 5$

35. $-b - 3b + 8b + 4$

36. $5h - 6 - 8 + 7h$

37. $8b + 6 - 8b + 1$

38. $t - 5 - 2t + 5$

39. $4w - 5w + w$

40. $6m - 7 + 2m + 7$

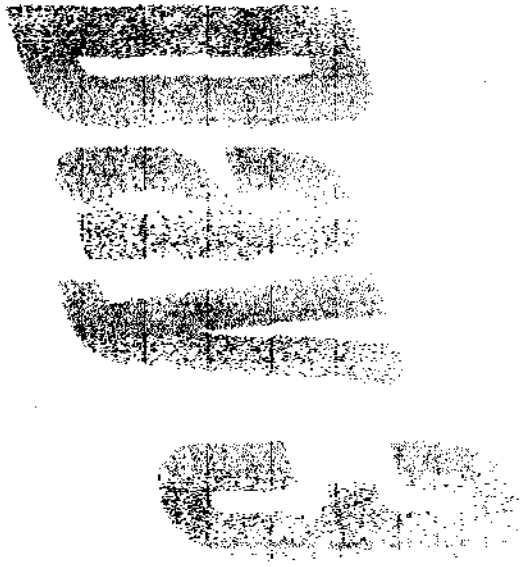
41. $5f - 7f + f$

42. $12y - 8 + 4y + y$

43. $9a + 5 - 7a - 2a$

44. $6g - 7g + 13$

45. $7x + 6 - 9x - 3$



Cooperating Teacher: Ms. McNally, and Ms. Guerriero
Date: October 9, 2008
Class Title: Algebra 1, and Geometry
Class Time: 8:00, 8:50, 9:40
Topic of the Lesson: Exponents, and geometry is a self paced class
Summary of Teaching Techniques Used: The teacher began with a class starter. After this she got into a review of what they have been working with, and then she got into new material.
Summary of Classroom Management Strategies Used: Ms. McNally did not tell the students to stop talking when she was. However, she kept a structured lesson.
Summary of Interesting Investigations: The teacher had to work out a deal with a students' parents so that he could complete his work at home.

Ms. McNally
Today I went into Ms. McNally's classroom. I got to walk around and help students with their work. You could always tell those students who were struggling because they would just stare at their paper or something else. I liked how the teacher allowed a lot of time to practice and try examples so she could walk around and help if there were any problems. There was one student who the teacher had worked out a plan with a student's parents to allow him to take class work home to complete along with the homework.

Ms. McNally
Ms. McNally's second class was completely different than her first class, even though the students were working on the same material. These students were working slower than the other class because they were having trouble adding and subtracting variables with coefficients in front of them. I felt it was necessary to teach the students how to use a number line because they were struggling so much. The students will not be able to master the tougher material until they master adding and subtracting variables.

Ms. Guerriero's Class
Ms. Guerriero's geometry class is self paced. The students were given a sheet with an expected time line of how long they were suppose to work on each topic. I really liked how the teacher had labs set up for the students so they could explore different topics using real life items. I did however find it very distracting to those students who were not at the same point. I think the room should have been set up so each station had their own set of desks. It was interesting to watch how Ms. Guerriero handled a very loud and disruptive student. She said that she had tried everything and this student still an issue in her class. She had to move him and keep close tabs on him so he would do his work. I would not set my class up like this because I feel there needs to be more instruction for topics to really settle into student's brains.

Day 4

Cooperating Teacher: Ms. Amitrano, and Ms. Rawson
Date: October 16, 2008
Class Title: Fractions, and Algebra 1
Class Time: 8:00, 8:50, 9:40
Topic of the Lesson: Independent stations for the fraction class and exponents in the algebra 1 class.
Summary of Teaching Techniques Used: In the first class the teacher used the approach of self teaching with assistance if needed, and the other two classes Amanda and I used the method of having a class starter, questioning, and then going over the homework.
Summary of Classroom Management Strategies Used: In the first class the teacher let the students talk quietly as long as it was about their work, other wise she asked them to stay on task. In the other two classes the students were to be quiet when we were talking.
Summary of Interesting Investigations: The students reacted well to being told that if they were not quiet they would be moved.

Ms. Amitrano's Class
Today I went around and helped any students that had questions. I found it interesting that the students use what is called a lattice to help them with their multiplication fact. I probably would never use a lattice sheet. I think that there are better ways for students to learn their facts. The teacher encouraged her students to use their multiplication table in their planner. I thought that it was interesting that many of the students did not know how to use the table. I did however, like how organized the teacher was. She had a timeline for the students and how long they were suppose to be at each station. She had all the worksheets in labeled folders that had posted its with day one, two, and so on. The students had to have the teacher check their work. She made them redo any problems that were wrong. I liked that the students could not move on till they had everything correct.

Ms. Rawson's First Class
Today I team taught with Amanda in Ms. Rawson's algebra 1 class for two blocks. The first block we gave the students a mad minute where they had to complete 50 multiplication facts in one minute. I felt this was important because so many students struggle with their multiplication facts. Then we went over their homework because the students had a lot of questions. Amanda and I took a problem each and had the students walk us through the process of solving the problem. This went very well. After this we went over a couple examples that combined what they were doing with something a little different. We then had the students work on some more problems like these while we walked around to help.

Ms. Rawson's Second Class
In the second block the students were at a lower level and they were struggling. We started by going over any questions that the students had from their homework. Once the students' questions were answered they were given a homework quiz. This class did not run as smoothly as the first block. I attribute some of that to not being fully prepared because we were not given the material ahead of time. The students were getting frustrated when going over their quiz so I decided that it would be a good idea to play a

game with them. The students had a head off challenge. I broke them up into two groups. One person from each team would face off with another student from the other team. The students tried to get the right answer to the problem that I put on the board in the fastest time. This worked well because it allowed us to see where students were struggling.

Name: _____

Answer as many questions as you can in one minute.....

2 x 3 = _____

1x 3 = _____

3 x 4 = _____

4 x 5 = _____

5 x 8 = _____

6 x 6 = _____

6 x 7 = _____

11 x 10 = _____

11x 3 = _____

12 x 4 = _____

1 x 4 = _____

5 x 3 = _____

12 x 1 = _____

10 x 5 = _____

1 x 6 = _____

8 x 9 = _____

9 x 4 = _____

3 x 6 = _____

6 x 9 = _____

5 x 7 = _____

21. 1 x 7 = _____

22. 8 x 4 = _____

23. 9 x 0 = _____

24. 6 x 8 = _____

25. 3 x 8 = _____

26. 11 x 6 = _____

27. 10 x 10 = _____

28. 0 x 7 = _____

29. 6 x 5 = _____

30. 4 x 2 = _____

31. 4 x 10 = _____

32. 3 x 12 = _____

33. 7 x 8 = _____

34. 2 x 7 = _____

35. 2 x 8 = _____

36. 8 x 8 = _____

37. 10 x 8 = _____

38. 1 x 5 = _____

39. 9 x 11 = _____

40. 11 x 8 = _____

41. 0 x 0 = _____

42. 4 x 6 = _____

43. 7 x 7 = _____

44. 10 x 3 = _____

45. 5 x 5 = _____

46. 9 x 11 = _____

47. 8 x 2 = _____

48. 11 x 11 = _____

49. 4x 4 = _____

50. 7 x 7 = _____

Name: _____ Date: _____

Directions: Please show all work. Simplify these expressions.

a. $\frac{15x}{2y^2} \cdot \frac{12y^3}{20x}$

b. $\frac{13x^4}{2xy^2} \cdot \frac{14y^8}{39x^2y}$

c. $\frac{38x^4y}{2x^3y^2} \cdot \frac{12x^3y^4}{19x^2y}$

d. $\frac{13x^4}{2xy^2} \cdot \frac{4y^8}{26x^2y} \cdot \frac{4xy}{16x^3y^5}$

e. $\frac{12m^2n^3}{3mn^2} \cdot \frac{4t^7}{25m^2nt^3} \cdot \frac{5mnt}{24n^3t^5}$

f. $\frac{12p^2t^3}{3pt^2} \cdot \frac{4t^7}{25p^2t^3} \div \frac{20pt}{15n^3t^5}$

g. $\frac{20x^{-6}}{2y^{-2}} \cdot \frac{8y^3}{45x^{-3}}$

h. $\dfrac{7x^{-4}}{2x^{0}y^{-2}} \cdot \dfrac{14y^{3}}{91x^{2}y^{-1}}$

i. $\dfrac{(3x^{4})^{3}}{22xy^{2}} \cdot \dfrac{4y^{8}}{54x^{2}y} \cdot \dfrac{11xy}{(4x^{3}y^{5})^{2}}$

j. $\dfrac{(3x^{5})^{-3}}{24xy^{2}} \cdot \dfrac{(-2xy^{3})^{3}}{(27x^{2}y)^{-1}} \cdot \dfrac{(-11x^{23}y^{13})^{0}}{(4x^{3}y^{5})^{2}}$

k. $\dfrac{(4x^{4})^{2}}{-2xy^{2}} \cdot \dfrac{(x^{4}y^{8})^{\frac{1}{2}}}{8x^{22}y^{13}} \cdot \dfrac{11xy}{(4x^{3}y^{5})^{2}}$

l. $\dfrac{(p^{2}t^{8})^{\frac{1}{4}}}{3pt^{2}} \cdot \dfrac{4n^{6}t^{7}}{25(p^{2}t^{4})^{\frac{1}{2}}} \div \dfrac{20pt}{15n^{3}t^{5}}$

m. $\dfrac{(12p^{12}t^{13})^{2}}{(p^{10}t^{20})^{\frac{1}{5}}} \div \dfrac{4t^{7}}{25p^{2}t^{3}} \cdot \dfrac{20p^{25}t^{7}}{15n^{3}t^{5}}$

o. $\dfrac{7x^{y}}{4x^{5}m^{-2}} \cdot \dfrac{18m^{n}}{21x^{2}m^{3}}$

p. $\dfrac{(3x^{m})^{3}}{22x^{m}y^{2}} \cdot \dfrac{4y^{8w}}{9x^{m}y^{w}} \cdot \dfrac{11x^{-m}y^{-2w}}{(x^{3})^{m}(y^{5})^{w}}$

q. $\dfrac{(b^{2y}m^{6x})^{\frac{1}{2}}}{(5b^{3y}m^{5x})^{2}} \cdot \dfrac{25b^{y}m^{x}}{b^{2y}m^{3x}}$

r. $\dfrac{(b^{3y}m^{6x})^{\frac{2}{3}}}{(\frac{1}{2}b^{3y}m^{5x})^{3}} \cdot \dfrac{\frac{1}{8}b^{y}m^{x}}{b^{5y}m^{-2x}}$

Name: _____ Date: _____

Directions: Show all work. Simplify these expressions. Distribution is needed for all problems. Combine like terms when appropriate.

a. $3(x+2)$ b. $-3(3x-5y)$ c. $-3m(2m-6n)$

d. $-\frac{2}{3}m(6m^3-18n^5)$ e. $-\frac{2}{3}m^3n^2(\frac{6}{7}m^3-4n^5)$

f. $-\frac{1}{5}x^3y^2(-3x^{-3}+15y^{-1})$ g. $7m^3n^2p(\frac{6}{7}m^3n^2p-4m^7n^5+\frac{1}{14}p^5)$

h. $7p(2p^2-4p+5)+3p(4p^2+3p-10)$

i. $-13x(2x^2-4x-7)-3x(9x^2+3x-10)$

j. $\frac{3}{5}p(5p^2-15p+\frac{2}{3})-3p(-4p^2+\frac{1}{3}p-\frac{7}{15})$

k. $-3x(2x^2-4x-7)-3x(10x^2+3x-12)+7(-4x^2+3x-7)$

l. $-\frac{1}{2}x(2x^2-4x-7)-\frac{3}{2}x(10x^2+4x-11)-7(-4x^2+3x)$

Name: _____ Date: _____

Directions: Please show all of your work. You need to factor (simplify) these expressions by taking out the Greatest Common Factor. This is reverse distribution.

a. $25x + 30y$

b. $-5x^2y + 60xy^2$

c. $2x^4y^3 + 16x^3y^2 - 3x^2y + 28x$

d. $-12m^4z^3 + 16m^3z^2 - 20m^2z$

e. $-120t^4w^3 + 160t^3w^2 - 20t^2w$

f. $\frac{1}{2}x + \frac{3}{5}y$

g. $2xy + \frac{3}{7}xy^2 - 5x^2y$

h. $\frac{3}{7}b^5d^7 + \frac{3}{7}b^4d^2 - \frac{3}{7}b^3d^5$

i. $2\pi r^2 + 2\pi rh$

j. $6\alpha\beta - 16\alpha\beta^2 - 12\alpha^2\beta$

k. $-6\lambda\pi\theta^2 - 10\pi^2\theta^2 - 12\lambda^2\pi\beta\theta^3$

l. $\frac{a}{b}x^b n^7 - \frac{a}{b}x^b n^2 - \frac{a}{b}x^b n^3$

Simplify these algebraic fractions.

a. $\frac{7x^2(x+3)}{4x^5m^2} \cdot \frac{18m^5}{21x^2+63}$

b. $\frac{(x+5)(x-3)}{3d(5x+25)} \cdot \frac{18d^7}{2d^4(3x-9)}$

b. $\frac{t^2(r+\pi)}{12r^2+12\pi r} \cdot \frac{b^5}{b^{-3}tr^2}$

d. $\frac{(x+7)^2}{4x^5m^2} \cdot \frac{18m^5}{9x^2+63}$

Name: _____ Date: _____

Directions: Please show all work. Simplify these expressions.

a. $\frac{5x^3}{2y^2} \cdot \frac{22y^6}{30x}$

b. $\frac{17x^4}{7xy^6} \cdot \frac{14y^{18}}{34x^2y}$

c. $\frac{63x^9y}{78x^{19}y^2} \cdot \frac{12x^3y^{15}}{21x^2y}$

d. $\frac{17x^4}{2xy^{-3}} \cdot \frac{4y^8}{26x^{-3}y} \cdot \frac{8xy}{34x^3y^{19}}$

e. $\frac{12m^2n^3}{2mn^{17}} \cdot \frac{4t^7}{35m^{-2}nt^3} \cdot \frac{7mnt}{34n^3t^5}$

f. $\frac{22p^9t^{33}}{18pt^8} \cdot \frac{4t^7}{25p^7t^3} \div \frac{30pt}{45n^3t^{15}}$

g. $\frac{60x^{-16}}{3y^{-12}} \cdot \frac{18y^3}{45x^{-13}}$

h. $\dfrac{7x^{-14}}{12x^{0}y^{-2}} \cdot \dfrac{14y^{13}}{84x^{2}y^{-1}}$

i. $\dfrac{(3x^{14})^{3}}{12xy^{2}} \cdot \dfrac{4y^{8}}{55x^{2}y} \cdot \dfrac{11xy}{(4x^{13}y^{25})^{2}}$

j. $\dfrac{(-3x^{5})^{-2}}{24xy^{2}} \cdot \dfrac{(2xy^{3})^{2}}{(27x^{2}y)^{-1}} \cdot \dfrac{(-11x^{23}y^{13})^{0}}{(-4x^{3}y^{5})^{3}}$

k. $\dfrac{(4x^{34})^{2}}{-2xy^{2}} \cdot \dfrac{(x^{6}y^{18})^{\frac{1}{2}}}{8x^{2}y^{13}} \cdot \dfrac{17xy}{(4x^{3}y^{5})^{2}}$

l. $\dfrac{(p^{3}t^{9})^{\frac{1}{3}}}{3pt^{2}} \cdot \dfrac{4n^{6}t^{7}}{25(p^{2}t^{4})^{\frac{1}{2}}} \div \dfrac{50pt}{16n^{3}t^{5}}$

m. $\dfrac{(13p^{12}t^{13})^{2}}{(p^{27}t^{18})^{\frac{1}{9}}} \div \dfrac{4t^{12}}{25p^{13}t^{3}} \cdot \dfrac{30p^{25}t^{7}}{15n^{3}t^{5}}$

o. $\dfrac{8x^{y+2}}{4x^{7}m^{-3}} \cdot \dfrac{28m^{n-1}}{42x^{2}m^{3}}$

p. $\dfrac{(3x^{m})^{3}}{33x^{m}y^{2}} \cdot \dfrac{14y^{9w}}{12x^{m+4}y^{w-5}} \cdot \dfrac{11x^{-m}y^{-2w}}{(x^{3})^{m}(y^{5})^{w}}$

q. $\dfrac{(b^{2y}m^{6x})^{\frac{1}{2}}}{(-4b^{3y}m^{5x})^{2}} \cdot \dfrac{16b^{y-1}m^{x}}{b^{2y}m^{3x+1}}$

r. $\dfrac{(b^{3y}m^{9x})^{\frac{2}{3}}}{(\frac{1}{3}b^{3y}m^{5x})^{3}} \cdot \dfrac{\frac{1}{27}b^{y}m^{x-2}}{b^{4y}m^{-3x}}$

Name: _____ Date: _____

Directions: Show all work. Simplify these expressions. Distribution is needed for all problems. Combine like terms when appropriate.

a. $3(x+2)$ b. $-3(3x-5y)$ c. $-3m(2m-6n)$

d. $-\frac{2}{3}m(6m^3-18n^5)$ e. $-\frac{2}{3}m^3n^2(\frac{6}{7}m^3-4n^5)$

f. $-\frac{1}{5}x^3y^2(-3x^{-3}+15y^{-1})$ g. $7m^3n^2p(\frac{6}{7}m^3n^2p-4m^7n^5+\frac{1}{14}p^5)$

h. $7p(2p^2-4p+5)+3p(4p^2+3p-10)$

i. $-13x(2x^2-4x-7)-3x(9x^2+3x-10)$

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l. $-\frac{1}{2}x(2x^2-4x-7)-\frac{3}{2}x(10x^2+4x-11)-7(-4x^2+3x)$

Name: _____ Date: _____

Directions: Please show all of your work. You need to factor (simplify) these expressions by taking out the Greatest Common Factor. This is reverse distribution.

a. $25x + 30y$

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c. $2x^4y^3 + 16x^3y^2 - 3x^2y + 28x$

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e. $-120t^4w^3 + 160t^3w^2 - 20t^2w$

f. $\frac{1}{2}x + \frac{3}{5}y$

g. $2xy + \frac{3}{7}xy^2 - 5x^2y$

h. $\frac{3}{7}b^5d^7 + \frac{3}{7}b^4d^2 - \frac{3}{7}b^3d^5$

i. $2\pi r^2 + 2\pi rh$

j. $6\alpha\beta - 16\alpha\beta^2 - 12\alpha^2\beta$

k. $-6\lambda\pi\theta^2 - 10\pi^2\theta^2 - 12\lambda^2\pi\beta 0^3$

l. $\frac{a}{b}x^b n^7 - \frac{a}{b}x^6 n^2 - \frac{a}{b}x^b n^3$

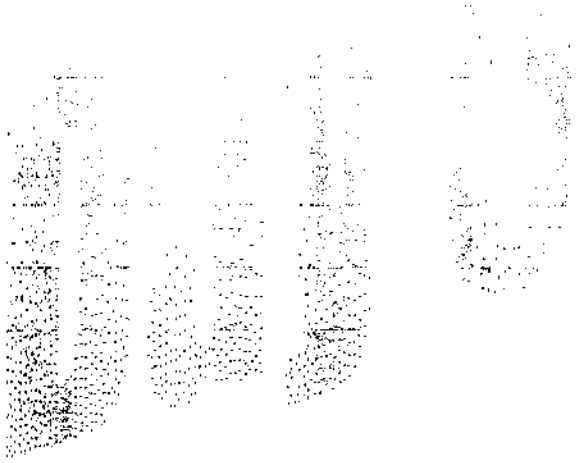
Simplify these algebraic fractions.

a. $\frac{7x^2(x+3)}{4x^5m^2} \cdot \frac{18m^5}{21x^2+63}$

b. $\frac{(x+5)(x-3)}{3d(5x+25)} \cdot \frac{18d^7}{2d^4(3x-9)}$

b. $\frac{t^2(r+\pi)}{12r^2+12\pi r} \cdot \frac{b^5}{b^{-3}tr^2}$

d. $\frac{(x+7)^2}{4x^5m^2} \cdot \frac{18m^5}{9x^2+63}$



Cooperating Teacher: Mr. Carr, Ms. Rawson, and Mr. Duncan
Date: October 21, 2008
Class Title: Fractions, Algebra 1, and Fractions
Class Time: 8:00, 8:50, 9:40
Topic of the Lesson: Independent fraction work, exponents, and probability.
Summary of Teaching Techniques Used: The first class was self paced, the second the teacher had the students work at different stations, and the third was activity based.
Summary of Classroom Management Strategies Used: All the teachers had a pretty relaxed classroom but the students knew who the boss is.
Summary of Interesting Investigations: I learned you have to make a conscious effort to walk around the class to see where every student is when working. This is because many students seem to get off task. It is also important to choose carefully when grouping students.

Mr. Carr's Class
Today I sat in on Mr. Carr's percent class. The class was organized so that the students were working independently. They had to complete a certain amount of work and then take a quiz in order to move onto the next topic. The class was set up into four desks of four. I thought that it would have been more beneficial if the teacher had, had the students sit at tables with other peers who were working on the same station.

Ms. Rawson's Class
Next I went to Ms. Rawson's class. I worked at a station with the students to help them brush up on skill. These skills were the ones that they struggled with on their assessments. The students worked for 15 minutes at each station and then they rotated among four stations. This worked well because students were able to help their peers. Once the students completed their worksheet they were to help the other members in their group. The teacher made the groups so that they were all even. In order to do this it was helpful that there were three teachers in the room. I think it was beneficial for the students to work at different stations dealing with the different skills associated with exponents. I think it was easier that there were three teachers in the room. It allowed more students to get help if they needed it.

Mr. Duncan's Class
The last class was Mr. Duncan's fraction class. I taught a probability lesson to his students today. I planed a skittles investigation. First I introduced what a ratio was. Then I went over the directions to the skittles investigation. This went well. The students worked well together. I probably should have had the students read the directions with me so they understood the first part. They were to make a prediction first but most of the students counted the skittles instead. I also should have set a time limit because two groups were done with their graphs and the other two groups were not. Then I got the students' attention and wrote the definition of probability on the board. I asked if the students noticed anything with what they had just done and the definition of probability. One student noticed that a ratio was the same as a probability. Then I had the students come to the board and put up their probabilities. The next activity the students were to take the probability of each color using everyone's information and then find the class

probabilities of the different colors. The students struggled with this because their fraction skill were lacking. I should have had the students' use the ratio expressed as a decimal and had them add that together. Or I should have made sure that all the bags had the same amount in them. If I were to do this again I would have situated a couple of students so that they were not working together or just had one sit on the other side of the table so her back was not to the board and done more with probability using a deck of cards.

NAME _____ DATE _____

Study Guide

Student Edition
Pages 501–505

Dividing by Monomials

Study the following exponent rules.

	Rule	Example
Quotient of Powers	For all integers m and n, and any nonzero number a, $\frac{a^m}{a^n} = a^{m-n}$.	$q^9 \div q^4 = q^{9-4} = q^5$
Zero Exponent	For any nonzero number a, $a^0 = 1$.	$4^0 = 1$ $6^0 = 1$
Negative Exponents	For any nonzero number a and any integer n, $a^{-n} = \frac{1}{a^n}$.	$\frac{r^3}{r^5} = \frac{r \cdot r \cdot r}{r \cdot r \cdot r \cdot r \cdot r} = \frac{1}{r^2}$ or $\frac{r^3}{r^5} = r^{3-5} = r^{-2}$

Simplify. Assume no denominator is equal to zero.

1. $\frac{a^2}{a}$

2. $\frac{x^5y^3}{x^5y^2}$

3. $\frac{15a^3}{45a^2}$

4. $\frac{s^{-2}t^{-5}}{(s^2t^3)^{-1}}$

5. $\frac{a^5b^3}{a^2b^2}$

6. $\frac{k^6}{k^7}$

7. $\frac{(6a^{-1}b)^2}{(b^2)^4}$

8. $\frac{66w^3x^6y^9}{-22wxy^7}$

9. $\left(\frac{4m^2n^2}{8m^{-1}}\right)^0$

10. $\frac{15x^3}{5x^0}$

11. $\frac{x^2}{x^3}$

12. $\frac{(3st)^2u^{-4}}{s^{-1}t^2u^7}$

13. $\frac{b^5}{b^6}$

14. $\frac{x^9}{x^2}$

15. $\frac{24w^7t^4}{6w^3t^2}$

16. $\frac{9x^2z^5}{-3xz^3}$

17. $\frac{(-x^{-1}y)^0}{4w^{-1}y^2}$

18. $\frac{wt^3x}{wx}$

19. $\frac{w^2}{w}$

20. $\frac{(a^2b^3)^2}{(ab)^{-2}}$

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Kuta Software - Infinite Pre-Algebra

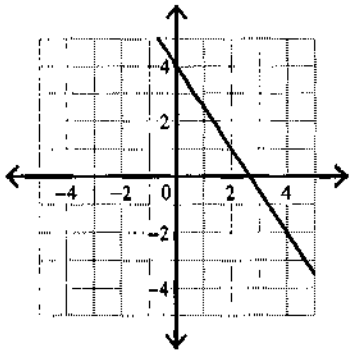
Name_____

Writing Linear Equations

Date_____ Period____

Write the slope-intercept form of the equation of each line.

1)



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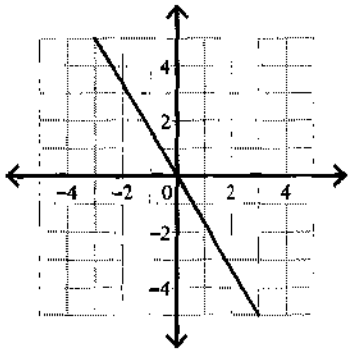

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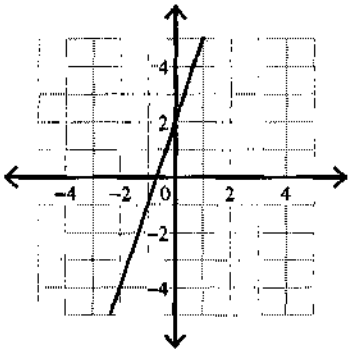

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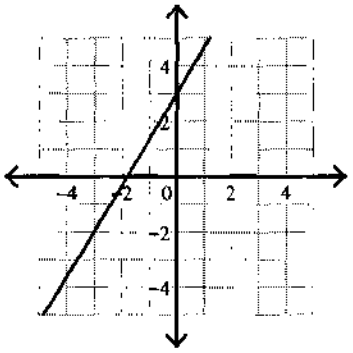

NAME_____ DATE_____ SCORE_____

Quotients of Monomials; Zero and Negative Exponents

Simplify each expression. Assume that no denominator is 0 and that all exponents are positive integers.

1. $\frac{15a^3}{35a}$ _____
2. $\frac{-4m^4n^3}{-2mn^2}$ _____
3. $\frac{x^{5+b}}{x^{3+b}}$ _____
4. $\frac{(-2a^2b)^3}{-4b}$ _____
5. $\frac{(6u^3v)^2}{(3uv^3)^3}$ _____
6. $\left(\frac{24h^4k}{8h^3k}\right)^3$ _____
7. $\frac{(a^3b^2c^3)^3}{(a^2bc^3)^4}$ _____
8. $\left(\frac{c^{5a}}{c^{4a}}\right)^t$ _____
9. $\frac{(2xy)^2}{xz} \cdot \left(\frac{z}{xy^2}\right)^2$ _____

Express in simplest form without negative or zero exponents.

10. $5 \cdot 2^{-3}$ _____
11. $\left(\frac{2}{3}\right)^{-2}$ _____
12. $\left(\frac{3}{5}\right)^{-2} \cdot \left(\frac{5}{12}\right)^{-1}$ _____

Express each of the following as a decimal numeral.

13. 5.8×10^{-3} _____
14. $(3.0 \times 10^{-1})^2$ _____
15. $\left(\frac{10}{7}\right)^{-3}$ _____

Express each of the following in simplest form, without using negative or zero exponents.

16. $5a^0$ _____
17. b^{-2} _____
18. $\frac{3c}{c^{-1}}$ _____
19. $\frac{d^{-3}}{d^{-4}}$ _____
20. $\frac{2ef^{-1}}{e^{-1}}$ _____
21. $\left(\frac{7}{g^{-1}}\right)^{-1}$ _____
22. $\frac{(n^3p^{-1})^2}{(np)^{-1}}$ _____
23. $\frac{(r^{-1}s^{-2})^{-3}}{(rs)^{-2}}$ _____
24. $\left(\frac{x^{-1}y}{z^{-1}}\right)^2 \cdot \left(\frac{x^3}{y^{-3}z^{-1}}\right)^{-1}$ _____
25. $\frac{(vw^{-1})^{-1}}{v} \cdot \frac{(v^{-1}w)^2}{w}$ _____
26. $(2^{-1}tu^{-1})^3 \cdot (6tu^{-1})^{-2}$ _____

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Example 2

Simplify $2y - 2(4x + y - 3)$.

$2y - 2(4x + y - 3)$	
$2y - 8x - 2y + 6$	*Step 1: Distribute the –2.*
$-8x + 6$	*Step 2: Collect y terms:* $2y - 2y = 0y = 0$.

Example 3

Simplify $2x - (x + 3)$.

$2x - (x + 3)$	
$2x - 1(x + 3)$	*Invisible one.*
$2x - x - 3$	*Step 1: Distribute the –1.*
$1x - 3$	*Step 2: Collect like terms.*
$x - 3$	

Example 4

Simplify $5y - (2x + 3y - 8x) + x$.

$5y - (2x + 3y - 8x) + x$	
$5y - 2x - 3y + 8x + x$	*All terms in parentheses change signs.*
$2y + 7x$	*Collect like terms:* $5 + (-3) = 2$, *and* $-2 + 8 + 1 = 7$.

EXERCISE 2.8

Simplify.

1. $2(x + 1)$

2. $-3(y + 4)$

3. $5x + 2(x + 1)$

4. $-2(x + 4) + 2x$

5. $5(2y - 3) + 15$

6. $-3 + 5(p + 2)$

7. $-4(x + 2y) + y$

8. $-(x + 2) + 4x$

9. $x - (x + 2)$

10. $5 - (2y + 3)$

11. $6x - 2(3y + 3x)$ Distribute –2 first.

12. $2z - 3(z + 1)$ Distribute –3 first.

13. $10 + \frac{1}{2}(x + 6)$ Hint: $\frac{1}{2} \cdot \frac{6}{1} = 3$.

14. $\frac{1}{3}(6x + 1) + 3x$

15. $4x - \frac{1}{2}(8x + 1) + x$

16. $5(a + 1) + 2(a + 3 + b)$

Lesson Plan

1.) Ask the kids what they have been talking about in their class.

2.) Ask anyone if they know what a ratio is. A ratio shows the relationship between two quantities. We can write ratio as $\frac{Part}{Whole}$ or in our case we will be defining ratio as $\frac{number\ of\ "color"\ skittles}{total\ number\ of\ skittles}$

3.) Today we are going to do an investigation with skittles. I am going to pair you into groups of two and then you will get in your group and work with your partner to read all the directions and complete the page. You are to not eat any skittles yet.

4.) Now get into the definition of probability. Probability is the likelihood of something happening. In our case it was the likelihood of choosing a red skittle or a green skittle.

5.) Have each group come to the board and put their ratios

6.) Have the students get back into their groups and then go over the first question with them and then let them finish the rest.

7.) See if everyone got the same answer and then go over then last question.

Name: _____

Skittles Investigation

1.) Without opening your package of skittles, estimate the total number of candies in the bag and record here. _____

2.) Next, use the table below to predict how many of each color you think you will have. (Hint: If your estimated total is 10 candies in the cup, then your total predictions for all the colors should add up to 10 as well.)

Colors	Prediction
Red	
Orange	
Yellow	
Green	
Purple	
Total # of Candies	

3.) Open your skittles bag, take one at a time, record its color, and put it in the empty bag. Do this for every skittle in your bag. Tally them up below. Then determine the ratio for each color (express as a decimal). What is the total number of skittles in your bag? _____

Colors	Tally	Ratio Expressed as a Fraction	Ratio Expressed as a decimal
Red			
Orange			
Yellow			
Green			
Purple			

4.) Now make a bar graph for the colors of your skittles. Come up with a title.

18					
16					
14					
12					
10					
8					
6					
4					
2					
	Red	Yellow	Green	Purple	Orange

Second Part of Investigation

Name: _____

Using the tallied information from all groups

1.) What is the probability of selecting a red candy?

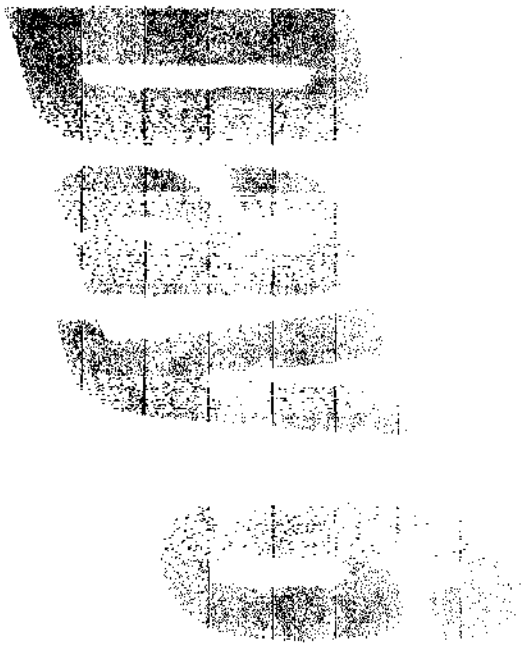
2.) What is the probability of selecting a green candy?

3.) What is the probability of selecting a purple candy?

4.) What is the probability of selecting a yellow candy?

5.) What is the probability of selecting an orange candy?

6.) Which color candy are you most likely to select from this bag of skittles?



Cooperating Teacher: Mr. Bobinsky, Ms. Rawson, and Mr. Duncan
Date: October 23, 2008
Class Title: Geometry, Algebra 1, and Fraction
Class Time: 8:00, 8:50, 9:40
Topic of the Lesson: Surface area, graphing $y = mx + b$ and exponents, and probability
Summary of Teaching Techniques Used: In the first class the students had a worksheet that they did not finish for homework and they worked independently to finish it. The second class the teacher used stations to help the students brush up on some skills. The third class was an activity driven lesson.
Summary of Classroom Management Strategies Used: The teachers had a pretty laid back atmosphere.
Summary of Interesting Investigations: It was interesting to see what the students got done for work when they were allowed to do their work in a separate room inside the classroom. I thought that the students would not get any work done but they actually did.

Mr. Bobinsky's Class
Today I went into Mr. Bobinsky's geometry class. The students had a work day to complete their homework because they did not all complete it. The teacher referred to the students writing a step by step process as brain discipline. He felt that if students were able to understand each step and why they were doing, it would eventually set in. The students were able to work in little rooms within the classroom that had doors. For the students it was a quiet place to get their work done. The teacher also had an assignment for the students to complete for next class. This paper was a multiplication practice sheet. The skills he felt his students were lacking. I liked this because it reinforces skills that are never learned or are forgotten.

Ms. Rawson's Class
The next class I went into was Ms. Rawson's class. The students worked in stations again today. Some finished earlier than others but when told they would help their classmates finish their work.

Mr. Duncan's Class
The next class I sat in on was Mr. Duncan's fraction class. Amanda was teaching today. She did a dice activity with the students to work on their probability skills. The students did well with this activity. Amanda just did not plan enough because there was extra time left. This allowed me to see that you have to over plan because you never know how long an activity will take students to complete. She did well to stand near the group that was having trouble staying on task, but was forgetting the girl in the back of the room.

MR. BOBINSKY'S GEOMETRY CLASS
Hillsboro-Deering Middle School
2008-2009

October 22, 2008

Dear Parents:

First - let me tell you that I enjoy working with your children in our math class. They are intelligent, responsible and attentive students.

Second - let me tell you that they all have the ability to succeed. For some, basic skills (primarily a quick grasp of multiplication facts) still need work. We work on these skills during class. Your children should also work on them at home. Also, I tutor after school to any student who wants additional help (see my schedule below).

Third – let me explain one important principle I'm trying to establish in our class that I know causes much frustration among your children. This is the concept or practice of "showing and being able to explain their work." Many students simply want to jump to an answer and not take the time to think through the process. Most mistakes I see in quizzes are due to this rush to an answer. In our class, we call thinking through the process "brain discipline" or "mental discipline" (something – by-the-way – that can be used in all non-math walks of life). When students use this "brain discipline" they almost always solve the problem correctly. So – please encourage your children to take the time to think it through.

Fourth – we are reaching the time of the trimester at which some students will move from geometry to algebra or some other math skill block. Rumors fly among students, so let me tell you that when any student moves from one math class to another you will be the first to know. As of today, all of my geometry students will be in geometry for the foreseeable future. I will let everyone know individually (student and parent) prior to a move happening.

Tutoring Schedule: I tutor every Tuesday and Friday after school. I am available for tutoring on Monday, Tuesday and Thursday by appointment due to various meetings scheduled on some of these days. All students are welcome.

I hope to be a positive partner in your children's education. Please feel free to call or email me if you ever have any questions, comments or criticisms.

Thanks,

Mr. B

tbobinsky@hdsd.k12.nh.us
464-1126 (W)
495-1250 (H)

HARD MULTIPLICATION DRILL

$$\begin{array}{r} 24.3 \\ \times\ 6.7 \\ \hline \end{array}$$

$$\begin{array}{r} 3.8 \\ \times 21 \\ \hline \end{array}$$

$$\begin{array}{r} 42.9 \\ \times\ 32 \\ \hline \end{array}$$

$$\begin{array}{r} 17.3 \\ \times\ 2.8 \\ \hline \end{array}$$

$$\begin{array}{r} 1.56 \\ \times\ 3.2 \\ \hline \end{array}$$

$$\begin{array}{r} 240.2 \\ \times\ 13 \\ \hline \end{array}$$

$$\begin{array}{r} 70.9 \\ \times\ 3.4 \\ \hline \end{array}$$

$$\begin{array}{r} 21.0 \\ \times 56 \\ \hline \end{array}$$

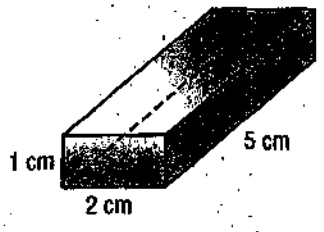
$$\begin{array}{r} 3.25 \\ \times 12 \\ \hline \end{array}$$

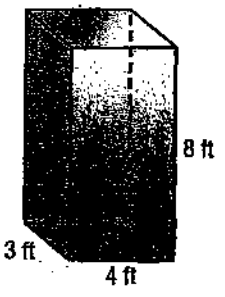
NAME _____ DATE _____ PERIOD ____

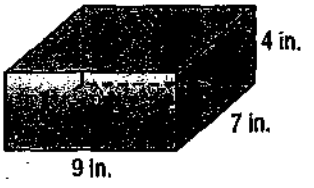
Practice: Skills

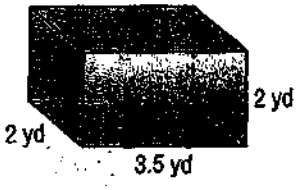
Surface Area of Rectangular Prisms

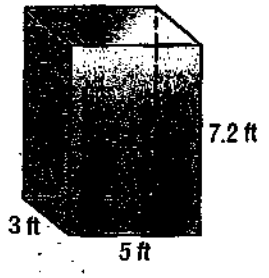
Find the surface area of each rectangular prism. Round to the nearest tenth if necessary.

1. 

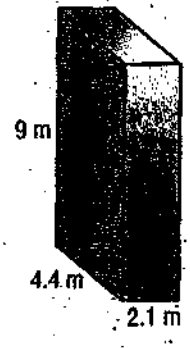
2. 

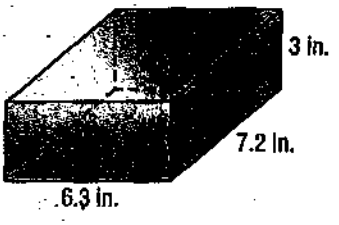
3. 

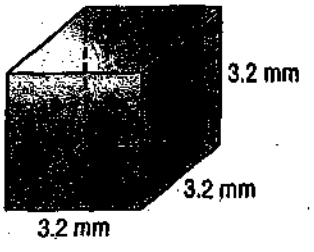
4. 

5. 

6. 

7. 

8. 

9. 

10. Find the surface area of a rectangular prism that is $3\frac{1}{2}$ feet by $4\frac{1}{4}$ feet by 6 feet.

11. What is the surface area of a rectangular prism that measures $2\frac{1}{3}$ meters by $2\frac{1}{2}$ meters by 4 meters?

Lesson 14–6

NAME _____ DATE _____ PERIOD ____

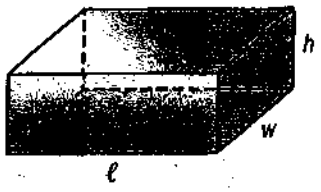
Study Guide and Intervention

Surface Area of Rectangular Prisms

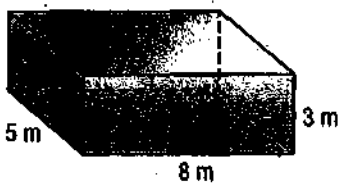
The **surface area** S of a rectangular prism with length ℓ, width w, and height h is the sum of the areas of the faces.

Symbols $S = 2\ell w + 2\ell h + 2wh$

Model



EXAMPLE 1 **Find the surface area of the rectangular prism.**



Find the area of each face.

top and bottom
$2(\ell w) = 2(8 \times 5) = 80$

front and back
$2(\ell h) = 2(8 \times 3) = 48$

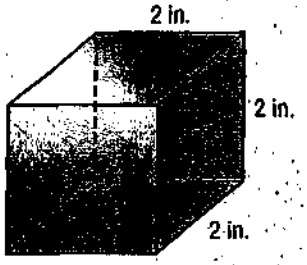
two sides
$2(wh) = 2(5 \times 3) = 30$

Add to find the surface area. The surface area is 80 + 48 + 30 or 158 square meters.

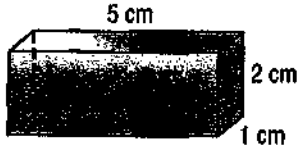
EXERCISES

Find the surface area of each rectangular prism. Round to the nearest tenth if necessary.

1.



2.



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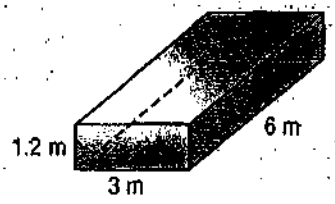

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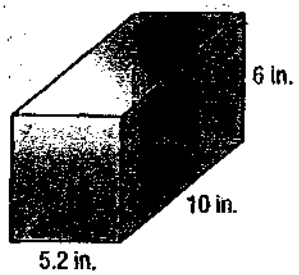

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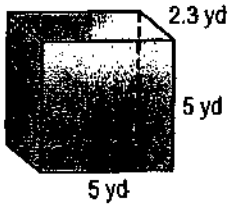
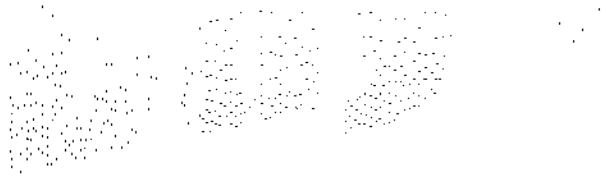


Dice Bingo

2
3
4
5
6
7
8
9
10
11
12



Cooperating Teacher: Ms. McHugh, and Ms. Plator
Date: November 13, 2008
Class Title: Algebra 1, and Algebra 2
Class Time: 8:00, 9:45
Topic of the Lesson: Graphing, and negative exponents
Summary of Teaching Techniques Used: The first teacher was very engaging with her students and requiring their help, and in the second class the teacher had a class starter, went over the homework, and then the students worked in groups on more problems.
Summary of Classroom Management Strategies Used: In the first class the teacher had the students' attention by keeping their involvement. There was not much of a management strategy in the second class. The students were sitting on desks and playing with the window.
Summary of Interesting Investigations: I thought that it was interesting how the teacher in the second class planned her block period. I think that a block is too long to have students do the amount of work that she wanted to. The students lost interest and were counting down the minutes till they could leave or where just socializing with their friends instead of doing work.

Ms. McHugh's Class
Today I went to the high school. I first observed Ms. McHugh's Algebra 1 class. The teacher was having the student help her to make a graph of what would happen to her grade. The students then make a chart with the two variables. The student's homework was to make their own story, graph it, and make a chart. The class was very interactive and the students were having fun while the teacher was helping them to learn the concept of graphing, and making charts. Ultimately the teacher thought this would help the students with open- ended questions. The students were arranged in rows of desks. The teacher utilized the overhead projector. I really liked the homework assignment and I might use something like it when I have my own classroom.

Ms. Plator's Class
The second class that I observed was Ms. Plator's Algebra 2 class. The teacher said that it was her toughest class because of the range of ability and that five students left every class a half hour early to go to the Concord Technical School. The class began with a warm up of three questions. The students were working on negative exponents. While the students were doing this the teacher walked around with the grade book to see if the students completed their homework and told them of any work they needed to catch up on. I liked how she did this but I do not think it was the best time. The teacher then had the students put problems up on the board from their homework. The students were very wild at this time. One student was sitting on his desk. Some students were just doodling on the board, and some were looking out the window. One student did not want to put any problems on the board. If I was the teacher I would have made the student put up an answer. I would not let the students sit on desks. After the teacher went over everything on the board she then drew names and put the students in groups to work on more problems. It took some groups longer than others. The students had too much time to work on the problems because they were off task. The school has a block schedule so the class was very long. The students had a hard time with how long the class was. I think

that the teacher could have done different activities to engage the students more and excite them. There needed to be more structure because the students were all socializing instead of doing their work.

Cooperating Teacher: Ms. Ryan
Date: November 18, 2008
Class Title: Algebra 1
Class Time: 8:00, 9:20, 10:30
Topic of the Lesson: Graphing linear inequalities
Summary of Teaching Techniques Used: The teacher started with a quickie quiz. Then she reviewed a little and went over new information. The students used their own whiteboards to answer problems. After this the students had time to work on their homework.
Summary of Classroom Management Strategies Used: The teacher is strict. She does not let anyone talk when she is. If they do she tells them to be quiet.
Summary of Interesting Investigations: I thought that it was interesting how the students do all their homework in class. The last thirty minutes of the block is spent doing homework and nothing is taken home. The students have their own folders in a file cabinet where they store all their work.

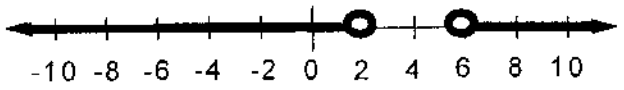
Ms. Ryan's Class
Today I went to ConVal High School. I observed Ms. Ryan's two algebra 1 classes. They begin everyday with a quickie quiz. This quiz covers concepts that the students have already learned. After all the students are done with the quiz, the teacher then goes over the quiz with the students. After this the teacher went over examples that the students have been working on and then they she teaches them new material. The students used their own personal whiteboards to write and solve any problems that the teacher put on the board. Once the students have the correct answer they hold up their board for the teacher to check. The teacher makes sure the students all have the correct answer before moving on to a new problem. The students really got excited to use the whiteboards. After this the teacher gave the students their homework assignment. The students never have homework that they take home. They usually have a half an hour in class to complete their work. If the students do not finish they can complete the assignment first thing the next day after they finish their quickie quiz. In the first class the students were very quiet compared to the second class. The teacher assigns seats at the beginning of the year and makes it so that boys and girls sit together. Once the teacher gets to know them she then assigns seats so that there is a struggling student sitting next to a student who is not struggling. The students were learning set notation with solving linear inequalities and graphing. I thought that it was interesting how they used set notation. Ms. Ryan said that the calculus teachers encouraged it.

Cooperating Teacher: Ms. Ryan
Date: November 20, 2008
Class Title: Algebra 1
Class Time: 8:00, 9:20, 10:30
Topic of the Lesson: Graphing linear inequalities and absolute values
Summary of Teaching Techniques Used: The teacher started with a quickie quiz. Then she reviewed a little and then went over new information. The students used their own whiteboards to answer problems. Then they had time to work on their homework.
Summary of Classroom Management Strategies Used: The teacher is strict. She does not let anyone talk when she is. If they do she tells them to be quiet.
Summary of Interesting Investigations: I thought that it was very interesting how the teacher emails parents every week if there are any concerns with their student.

Ms. Ryan's Class
Today the students in Ms. Ryan's two algebra classes were working on graphing more difficult inequalities. The students started with a quickie quiz. After they were done going over it the teacher had the students get out their whiteboards. The teacher then had the students try several examples that they have been working on. After the teacher reviewed with the students she then gave them a homework assignment to work on for the last thirty minutes of class. She projected the answers on the overhead so the students could see if they were doing the problems correctly and if they were not they could then ask for help. The students have a test every Friday so they are given a review sheet that they can take home to study with. The review sheet also has the answers on it so the students can see if they are doing the problems correctly. I really like the idea of having students do their homework in class. It alleviates those extra days spent having student complete their assignment in class because they do not finish it at home. The second class was pretty much the same as the first just the students were more interactive. The teacher also told me that at the beginning of the year she sends home a note with the student that says "I should be contacted when my student's grade is below ___." So the teacher emails the students' parents every week if their grade is below that certain point.

Practice Test #12 Name_____

Write the compound inequality for these graphs using set notation.

1. 

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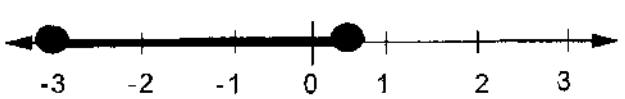
2. 

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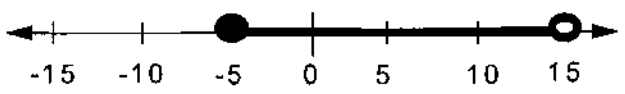
3. 

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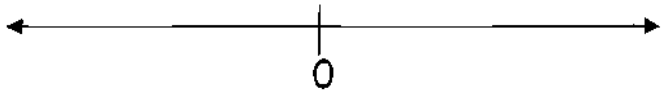
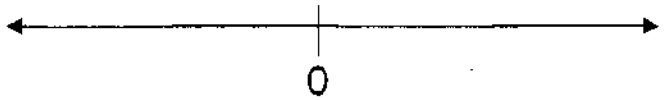
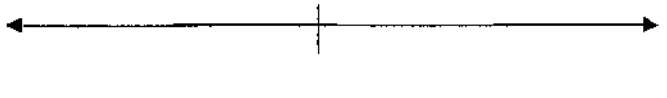
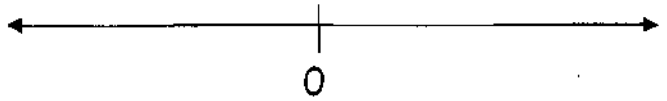
Graph the solution set for each of the following compound inequalities.

4. $\{x|-5 < x \leq 7\}$ 

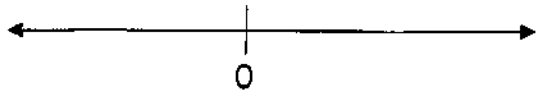
5. $\{y|\ 2 \leq y \text{ or } y > 8\}$ 

6. $\{y|\ y \geq -4 \cap y < -1\}$ 

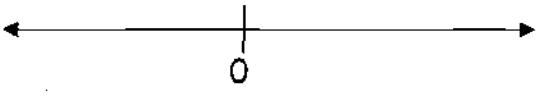
7. $\{x|\ x < 5 \cup x > 1\}$ 

Solve each inequality and graph the solution set.

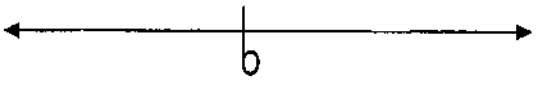
8. $y+3>8$



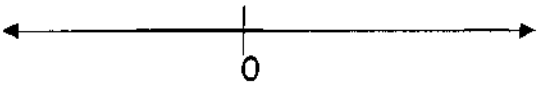
9. $-3a+6>-9$



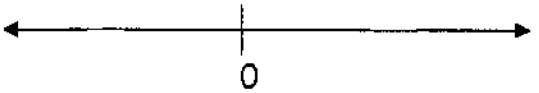
10. $8-3y\geq -5y+14$



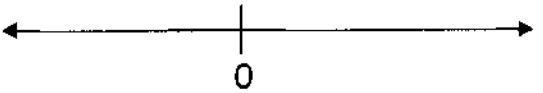
11. $3(x-5)<x-(7-x)$



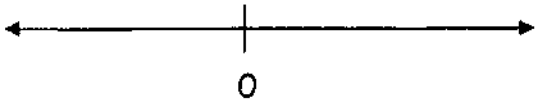
12. $x+5<3$ or $x-4\geq 1$



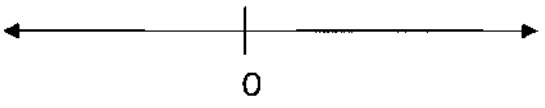
13. $3x\geq -6$ and $-2x>-10$



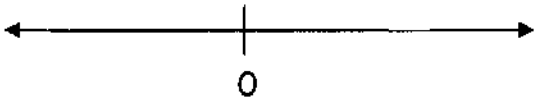
14. $3x < -9 \cup -4x + 2 < -14$



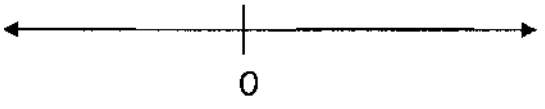
15. $4x - 7 < 2 \cap 3x + 2 > x + 1$



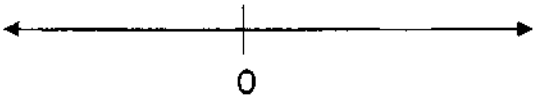
16. $|x - 3| < 6$



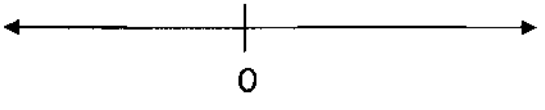
17. $|x - 3| \geq 6$



18. $|x| \geq 7$



19. $2|x + 4| \leq 10$

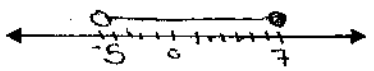


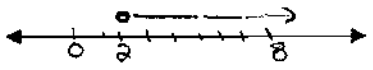
Solve each of the following Absolute Value Equations.

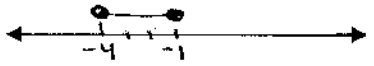
20. $\|x\| = 5$	21. $\|2x + 4\| = 10$
22. $3\|x + 4\| = 6$	23. $4\|2x - 6\| + 2 = 34$

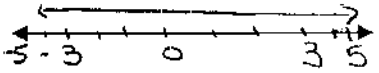
Answers

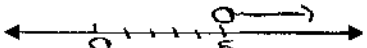
1. {x| x < 2 or x > 6} 2. {x| x ≥ -3 and x ≤ ½} 3. {x| x ≥ -5 and x < 15}

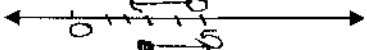
4. 

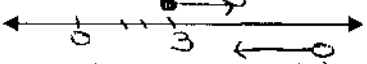
5. 

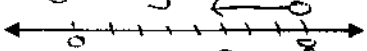
6. 

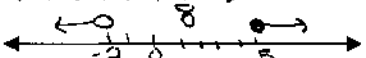
7. 

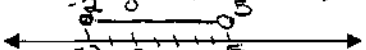
8. y > 5 

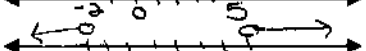
9. a < 5 

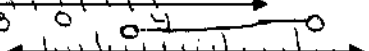
10. y ≥ 3 

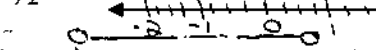
11. x < 8 

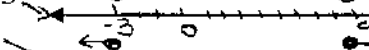
12. x < -2 or x ≥ 5 

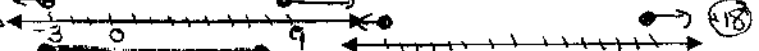
13. x ≥ -2 and x < 5 

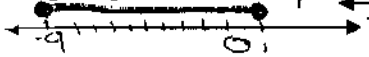
14. x < -3 or x > 4 

15. x < 2 ¼ and x > - ½ 

16. x < 9 and x > -3 

17. x ≥ 9 or x ≤ -3 

18. x ≥ 7 or x ≤ -7 

19. x ≤ 1 and x ≥ -9 

20. x = 5, -5 21. x = 3, -7 22. x = -2, -6 23. x = 7, -1

Day 10

Cooperating Teacher: Ms. Ryan
Date: November 25, 2008
Class Title: Algebra 1
Class Time: 8:00, 9:20, 10:30
Topic of the Lesson: Solving linear equations
Summary of Teaching Techniques Used: Exploration with manipulatives
Summary of Classroom Management Strategies Used: The teacher is very strict. She does not let anyone talk when she is. If they do she tells them to be quiet.
Summary of Interesting Investigations: I thought it was very neat to see the students working at their own pace with manipulatives. Many of the students finished before others. Since Ms. Hoyt's and Ms. Ryan's classes were working on the same thing, they split the two classes up. In one room there were the students who were still working and in the other were the students who had finished their assignment.

Ms. Ryan's Class
Today the students in Ms. Ryan's algebra one class were working on a passport assignment. They had a total of four days to complete it. They had mastery sheets which they could not get help with because it was the way of the teacher assessing whether or not the students understood the major concepts. They also had to do 5 shapes with tangrams and 5 different sets of equations using the perfect square pieces. An example follows:

$3(6x + 2) = 96$			
$18x$	$+ 6 =$	96	Dis
$18x$	$= 90$		A_{-6}
$X =$	5		D_{18}

These pieces are all cut up so the students can solve the equation and know if it looks like a perfect box it is probably correct. The tangrams had equations on them and then the students had to put the pieces together in order to solve the equation. In the second class the students started with a quickie quiz which I went over with the students. I thought it went pretty well. I had the students come to the board and put up the answers and then I had them explain to the rest of the class how they got their answers. One thing that I felt I could have done better would have been to assign who was to do each problem because no one wanted to volunteer.

Quickie Quiz

Simplify

1.) $|15|$

2.) $|-2-7|+3$

3.) $(-8+5)^2-9$

4.) $\frac{3}{5}x=-18$

5.) $5+x+4=10$

Reflection- *Cubic Functions* Abby Dutch

Reflecting on my first lesson, I was able to see there were parts I did well and not so well with, and aspects I can improve on. Although, it was not enjoyable to watch myself teach, it was very nice to hear someone else's opinion.

An aspect I felt I did well at was my pace of the lesson. I felt the class was able to follow everything I put on the board. I also feel I did well displaying how to use the distributive property. On the other hand I feel there were parts I did not do so well with. These would have to be when I put an incorrect equation on the board, staying in one spot pretty much the whole class, and not really using my time to the fullest.

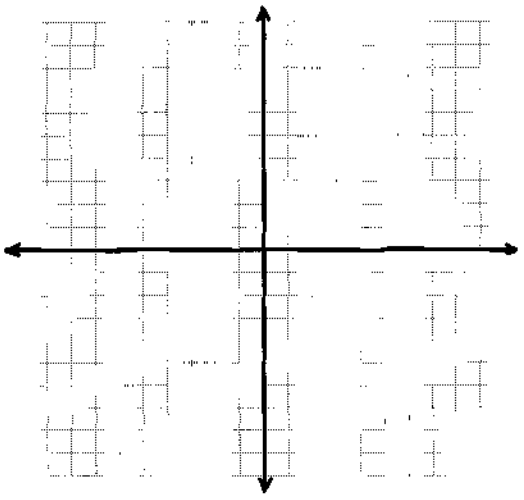
However, I feel I could have incorporated a worksheet into the lesson so I could more accurately gage where everyone was with the understanding of the distributive property. It would have also allowed me to walk around to help anyone who was having any difficulties. I feel I can work on the way I pose questions to the class so it gets them more involved and requires feed back from them. I also know that my voice is slow and monotone and as much as I try to add excitement it just does not work but I going to keep trying. Knowing these aspects will help me in future lesson planning.

Overall I think the lesson was a learning experience but I am still feeling very unsure of myself in front of the class because I do not really know techniques to use when trying to get everyone to understand the subject matter. I am hoping to gain more confidence in my abilities.

Graphing Cubic Functions Worksheet

Name _____

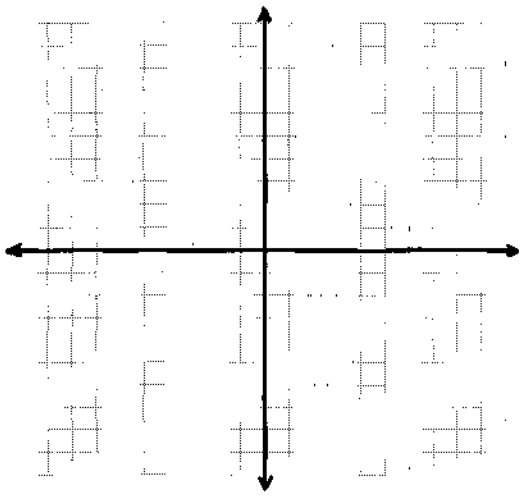
1.) Graph the equation $y = x^3$ using a T-table.



X	Y

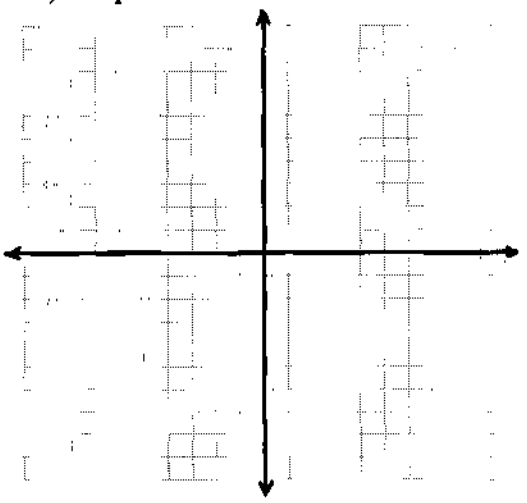
2.) Graph a cubic function.

Y = _____



X	Y

3.) Graph a cubic function.

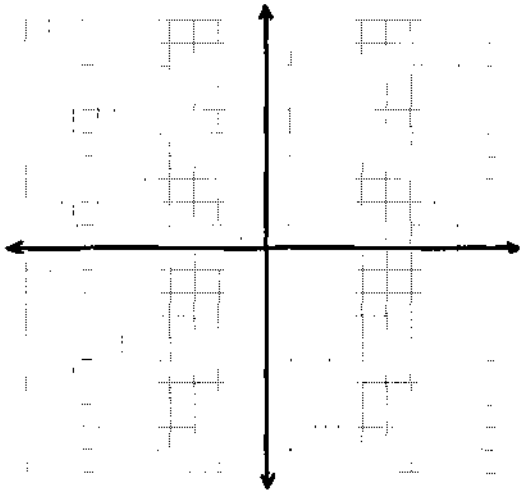


y = _____

X	Y

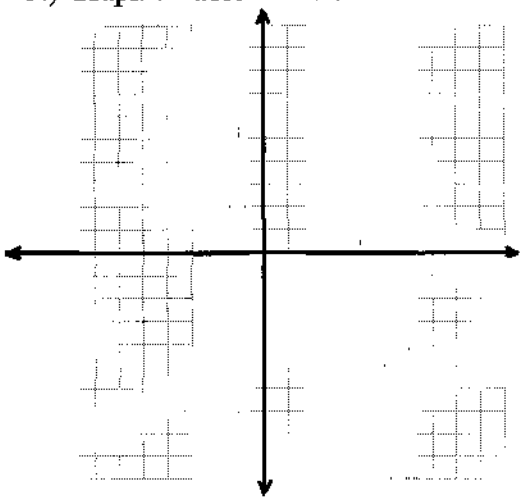
4.) Graph a cubic function.

y = _____



X	Y

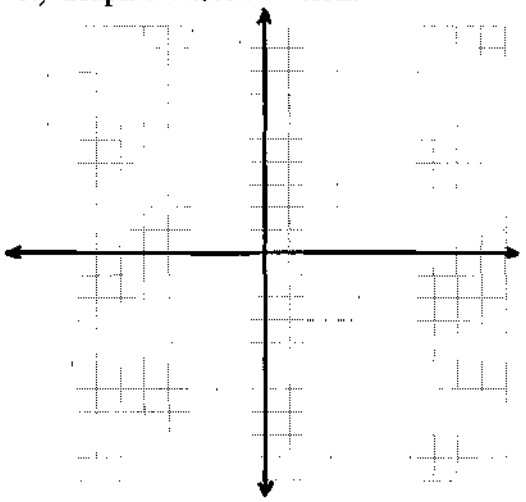
5.) Graph a cubic function.



y = _____

X	Y

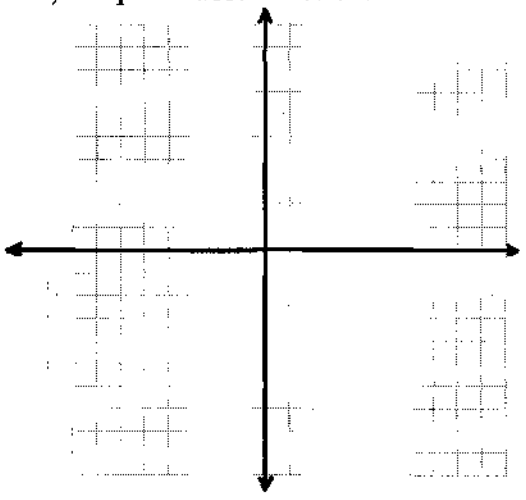
6.) Graph a cubic function.



y = _____

X	Y

7.) Graph a cubic function.

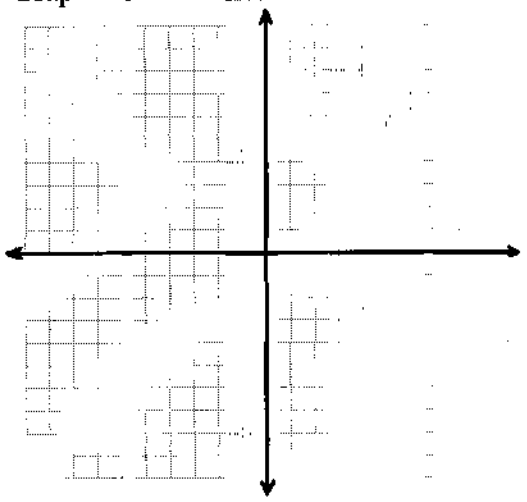


y = _____

X	Y

Graph a cubic function.

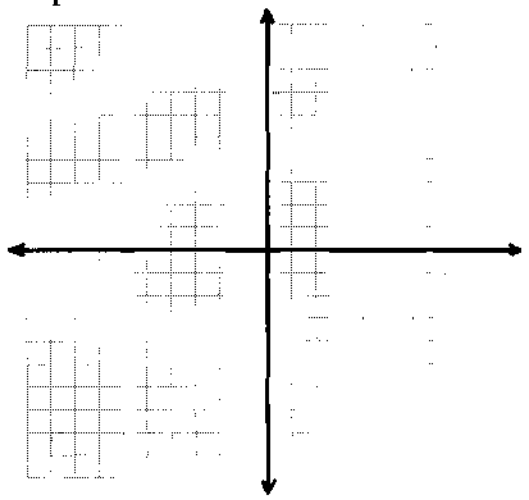
y = _____



X	Y

Graph a cubic function.

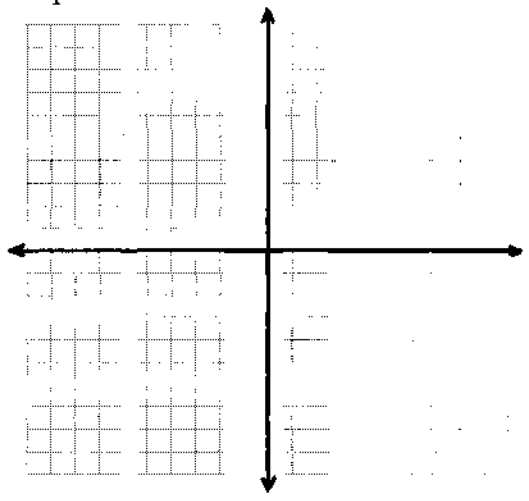
y = _____



X	Y

Graph a cubic function.

y = _____



X	Y

Reflection- *Algebra 1 Lesson* Abby Dutch

Today I taught the substitution method to my methods class. I started off with a class starter that had the students use the graphing method to find the solution to the systems of equations. As the lesson progressed I told the students that there was another method for solving called the substitution method. After going over a few problems together and giving the students steps to follow. They were able to try some more examples on their own. Once I felt the students understood how to solve problems using the substitution method I then had the students work on an activity. With the activity I paired the students with an index card and had them get in groups of two and solve their system that they created with their two cards. After this the students were given a worksheet to practice more problems.

Overall I thought the lesson went well but I know there are few aspects that I could have changed to make it run smoother. To start I should have had examples that workout better for the class starter. I also should have chosen better examples over all. When first going over the substitution method and creating steps I should have used a good example to start with so the students would not have gotten confused. If I had chosen better examples I think things could have run smoother.

Algebra 1- Lesson 2 Unit 3

Standards:

Mathematics (M:F&A:10:4)

- Solving problems involving systems of linear equations in a context (using equations or graphs) or using models or representations.

Objectives:

- The students will be able to solve systems of equations using the substitution method.
- The will work in pairs to solve different systems of equations using the substitution method.
- Students will complete a set of practice problems to show their understanding of the material.

Materials:

Teacher:

- Enough index cards so that each student will receive 1.

Student:

- Pencil and paper for notes.

Procedure (Step-by-Step):

1. The students will start with a class starter which is a refresher of graphing systems of equations without using a calculator. (Refer to Appendix B, pg. B1).
2. The class will then begin by going over the class starter and going over selected homework problems and any questions.
3. The students will then be introduced to another method for solving systems of linear equations. That method is called substitution. The students will also be able to apply this method when solving real world problems.
4. The teacher will walk students through a couple of problems using substitution (Refer to Appendix C, pg. C10).
5. The students will use the following steps to solve systems of equations involving substitution:
    - Step 1: Solve for one variable in at least one equation, if necessary.
    - Step 2: Substitute the resulting expression into the other equation.
    - Step 3: Solve that equation to get the value of the first variable.
    - Step 4: Substitute that value into one of the original equations and solve.
    - Step 5: Write the values from step 3 and 4 as an ordered pair, (x, y), and check.

6. The students will then try a several practice problems while the teacher circulates helping any students that need help. (Refer to Appendix C, pg. C10).
7. The students will then be given a worksheet with practice problems to try. (Refer to Appendix C, pg. C13- C14). The teacher will walk around to help any students who have questions.
8. Once all the students have answered 7 questions the class will stop working on the worksheet pass it into the teacher if the whole sheet is done otherwise it is homework. The students will be given an index card with a letter and number, and an equation on it (i.e. A1 and $x + y = 7$, A2 and $y = 7x + 5$). They will then find another student who has the same letter on their index card (i.e. A1 and A2). If there is an odd number there will need to be three of one letter. As a pair they will work together to solve their system of equation using the substitution method. If a group finishes early they can come to the board and put up their problem worked all the way to the end. Students will be given approximately 2 to 5 minutes to complete the problem. Once everyone has finished their problem the groups that put their problem on the board will then explain to the class how they reached their answer. Once the problems have been explained the students will then be placed into different groups and repeat the same process with a slight adjustment (refer to Appendix C, p. C11- C12 for the worksheet that goes with this). The only adjustment is with who comes to the board. The teacher should choose those groups that did not put a problem up yet. The students will answer the last question as homework.
9. The students will then be given a worksheet to complete for homework. (Refer to Appendix D, p. D4- D5).
10. Refer to Appendix F, pg. F1 for enrichment.

Assessment:

Formative:

- Students will complete a worksheet of practice problems.
- Students will work in pairs to complete different systems of equations.

Summative:

- Students will have an exam on solving systems of equations and inequalities at the end of the unit.

Technology Used:

- None for this lesson.

Class starter

1.) $\begin{cases} y = 5x - 25 \\ y = -8x + 27 \end{cases}$ 2.) $\begin{cases} y = 2x - 3 \\ y = 2x + 1 \end{cases}$ 3.) $\begin{cases} \frac{1}{2}x + 3y = -6 \\ \frac{1}{2}x + y = 2 \end{cases}$

Practice Problems

$5c + 4d = 80$
$3c - 2d = 10$

$y = 7 - 3x$
$2y + 6x = 14$

$y - 2 = \frac{1}{2}(x - 4)$
$2x + y = -6$

Find the value of two different numbers if their sum is 12 and their difference is 4.

A boat traveled 210 miles downstream and back. The trip downstream took 10 hours. The trip back took 70 hours. What is the speed of the boat in still water? What is the speed of the current?

Problems for students to try

$3x - y = 5$
$2x + 4y = 9$

$4x + 2y = 7$
$5x + y = 1$

$3y - y = 1$
$-6x + 2y = 0$

$2c + 5d = 8$
$3c - 4d = 5$

Equations for index cards

$y = 2x + 3$ $y = -\frac{5}{3}x - 2$ $y = 7 - 5x$ $y = 3$

$4x - 3y = 12$ $-3x = 6y - 2$ $y = \frac{1}{2}x + 4$ $4x - y = 5$

$2x + 3y = 1$ $3x - 4y = -5$ $x + y = 4$ $-2x - 2y = -6$

$5x - 2 = -6$ $-2x - 4y = 4$ $4x + 15y = 9$ $4x + 30y = 15$

$5x - 12y = -6$ $-4x + 6y = 3$ $y = 4x - 17$ $x - 7y = 12$

$3x + 4y = 11$ $4x - 3y = 32$ $3x + 3y = 6$ $y = x + 1$

Name: _____ Date: _____

Index Card Station Worksheet

Use substitution to solve all the system that you create.

1.) Your index card equation_____

Your partner's index card equation_____

2.) Your index card equation_____

Your partner's index card equation_____

3.) Your index card equation_____

Your partner's index card equation_____

4.) Your index card equation_____

Your partner's index card equation_____

5.) Your index card equation_____

Your partner's index card equation_____

6.) Your index card equation_____

Your partner's index card equation_____

Name: _____ Date: _____

Substitution Worksheet

Solve each system using substitution. Show all you work.

1.) $\begin{cases} x = 3 \\ 2y + x = 3 \end{cases}$

2.) $\begin{cases} y = 3x - 7 \\ 3x - y = 7 \end{cases}$

3.) $\begin{cases} y = -x + 3 \\ 2y + 2x = 4 \end{cases}$

4.) $\begin{cases} 3x - y = 4 \\ 2x - 3y = -9 \end{cases}$

5.) $\begin{cases} x + 5y = 4 \\ 3x + 15y = -1 \end{cases}$

6.) $\begin{cases} x - 5y = 10 \\ 2x - 10y = 20 \end{cases}$

7.) $\begin{cases} x + 4y = 8 \\ 2x - 5y = 29 \end{cases}$

8.) $\begin{cases} 4x + y = 0 \\ x + 2y = -7 \end{cases}$

9.) $\begin{cases} 2x - 3y = -24 \\ x + 6y = 18 \end{cases}$

10.) $\begin{cases} x + 14y = 84 \\ 2x - 7y = -7 \end{cases}$

11.) $\begin{cases} 0.3a - 0.2b = 0.5 \\ a + 2b = 15 \end{cases}$

12.) $\begin{cases} x - 3y = -4 \\ 2x + 6y = 5 \end{cases}$

13.) $\begin{cases} 3x - 2y = 11 \\ x - \frac{y}{2} = 4 \end{cases}$

14.) $\begin{cases} -3x - 4y = 2 \\ 3x + 3y = -3 \end{cases}$

15) $\begin{cases} \frac{x}{3} - y = 3 \\ 2x + y = 25 \end{cases}$

16.) $\begin{aligned} -2x + 6y &= 6 \\ -7x + 8y &= -5 \end{aligned}$

17.) $\begin{aligned} -2x - y &= -9 \\ 5x - 2y &= 18 \end{aligned}$

18.) How much of a 10% saline solution should be mixed with a 20% saline solution to obtain 1000 milliliters of 12% saline solution?

19.) The tens digit of a two-digit number is 3 greater than the units digit. Eight times the sum of the digits is 1 less than the number. Find the number.

20.) The sum of the digits of a certain two-digit number is 7. Reversing its digits increases the number by 9. What is the number?

Adapted from kutasoftware.com

Name: _____ Date: _____

Substitution Homework

Solve each system using substitution. Show all you work.

1.) $\begin{cases} y = 5x - 10 \\ y = 3x + 8 \end{cases}$

2.) $\begin{cases} 3x + y = 2 \\ 4x + y = 20 \end{cases}$

3.) $\begin{cases} y = 5 + x \\ 4x + y = 20 \end{cases}$

4.) $\begin{cases} 3x + 4y = 8 \\ 4.5 + 6y = 12 \end{cases}$

5.) $\begin{cases} x - 2y = 10 \\ \frac{1}{2}x - 2y = 4 \end{cases}$

6.) $\begin{cases} y - 4x = 3 \\ 2x - 3y = 21 \end{cases}$

7.) $\begin{cases} 2c + 2y = 2 \\ -4x + 4y = 12 \end{cases}$

8.) $\begin{cases} 3x + y = -8 \\ -2x - y = 6 \end{cases}$

9.) $\begin{cases} a = 0.5b + 2 \\ -a = -2b + 4 \end{cases}$

10.) $\begin{cases} -x + y = 4 \\ 3x - 2y = -7 \end{cases}$

11.) $\begin{cases} 4u - 3d = 11 \\ 5u - 6d = 9 \end{cases}$

Solve the following word problems using substitution

12.) A jar contains n nickels and d dimes. There are 20 coins in the jar, and the total value of the coins is $1.40. How many nickels and how many dimes are in the jar? (Hint: Nickels are worth $0.05 and dimes are worth $0.10.)

13.) Casey wants to buy a gym membership. One gym has $150 joining fee and costs $35 per month. Another gym has no joining fee and costs $60 dollars per month.

a.) In how many months will both gym memberships cos the same? What will that cost be?

b.) If Casey plans to cancel in 5 months. which is the better option for him?

Adapted from Holt Algebra 1 online

Reflection- *Geometry Lesson* Abby Dutch

Today I taught a geometry lesson to my methods class. To start I had the students take a quick quiz at the beginning of class. The quiz was over material that would have been covered in the previous lesson. Following this I went over the quiz with the students and then introduced the special triangle theorems. I started going over the 45°-45°-90° Theorem. I gave the students the definition and a picture to go along with it. Then I went over a couple of examples with the students and gave them some to try. After this I then gave the students the definition and a picture of the 30°-60°-90° Theorem. I went over a few examples and gave the students a few to try. After this I arranged the students into two groups. Each group was given four questions that were all on different sheets of paper to complete together. If a group finished early they were given a worksheet to work on till the other group was done. After all the groups were done, group one was given questions 1 and 2 and the other group was given the other two questions. In groups the students were to decide which answer was correct by looking at everyone's work. After the groups had chosen the correct answers I then had them put them on the board and we went over them together. After this the students were given their homework.

Overall I thought that this lesson went really well. I had good examples. The only confusion was the variables used in the definition of the special triangles. It was confusing using x and y. I should have made them a and b. I really liked how the activity worked because it really got the students to interact with each other and understand the theorems more. The one thing I need to work on is changing up my tone more.

Geometry- Lesson 4

Standards:

Mathematics (M:G&M:HS:5)

- Uses the ratios of the sides of special right triangles to solve related problems.

Objectives:

- The students will know the different special right triangles.
- The students will be able to determine the missing side using the Special Right Triangle Theorems.

Materials:

Teacher:

- Protractors are need for each student, and graph paper maybe helpful for some students.

Student:

- Pencil and paper for notes.

Procedure (Step-by-Step):

1. The class will start with a homework quiz after the teacher goes over any questions that the students may have. Refer to Appendix B, pg. 4.
2. The teacher will then introduce the two special right triangles. The students will copy down the 30-60-90 Triangle Theorem and the 45-45-90 Triangle Theorem. Refer to Appendix A, pg. 3.
3. The teacher will then go over a couple examples with the students and then give them a few to try. Refer to Appendix C, pg. 18 to see these examples.
4. The students will then be arranged into groups four or five groups depending on the size of the class. In each group student will be given a problem. As a group they are to solve the problem and then put their answer in a folder. Then after 5- 10 minutes per problem the students will then pass their problems in a counter clock wise direction. The students will then complete all the questions without looking at any of the other group's answers. Once each group has gotten back their original problem they will then decide which of the answers are correct. After every group has made a decision. Each group will come up to the board at once to explain the correct answer. Refer to Appendix C, pg. 19 to see the questions.
5. If the students finish and there is extra time in the class the teacher can give the students a worksheet to work on. Refer to Appendix C, pg. 24.
6. The students will be given a worksheet to complete for homework. Refer to Appendix D, pg. 6 to see this.

Assessment:

Formative:

- Students will be assessed on their abilities to perform the special triangle investigation and ability to work well in groups.

Summative:

- The students will be tested on their knowledge at the end of the unit.

Technology Used:

- None for this lesson.

Class Starter

Fill in the blanks
1.) Right triangles have exactly 1 _____.

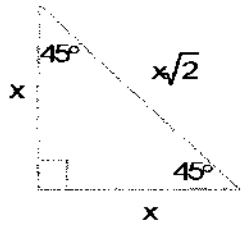
Obtuse triangles have one exactly 1 _____.

Acute triangles have all three angles _____.

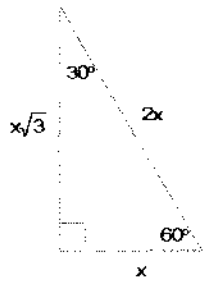
If a triangle is formed with sides having the lengths given, is it acute, right, or obtuse? If a triangle can't be formed, say not possible.
2.) 0.6, 0.8, 1 3.) 5n, 12n, 13n where $n > 0$ 4.) 0.5, 1.2, 1.3

Definitions

- 45°-45°-90° Theorem- In this type of triangle, the hypotenuse is $\sqrt{2}$ times as long as a leg.



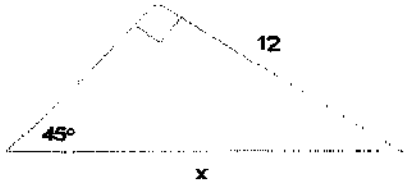
- 30°-60°-90° Theorem- In this type of triangle, the hypotenuse is twice as long as the shorter leg, and the longer leg is $\sqrt{3}$ times as long as the shorter leg.



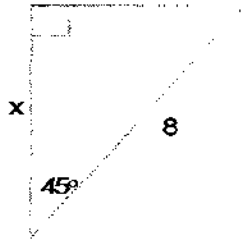
Examples for the teacher to do with the students

Find the value for x.

1.)

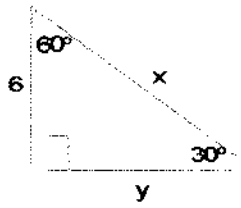


2.)

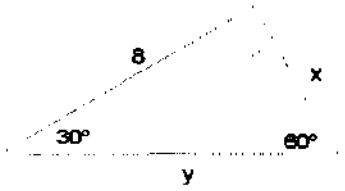


Find the values of x and y.

3.)

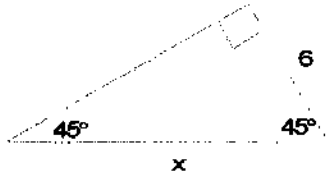


4.)



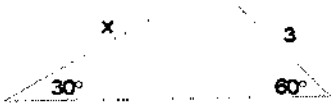
Examples for the students to try

1.)

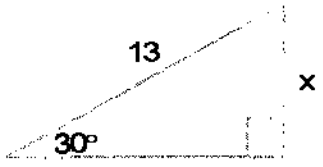


2.)

3.)



4.)

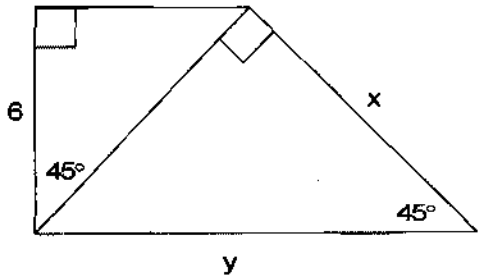


Question 1

Group names: _____ Date: _____

Directions: As a group complete the following problem. Show all your work. DO NOT look at anyone else's answers and when you are finished put your answer in the envelope.

Find the values of x and y

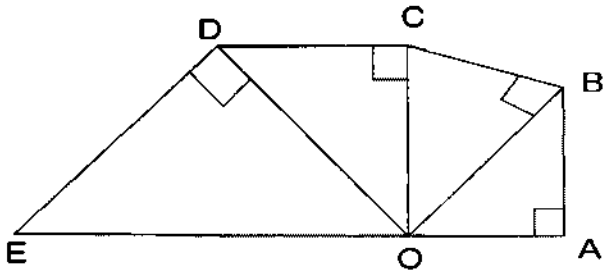


Question 2

Group names: _____ Date: _____

Directions: As a group complete the following problem. Show all your work. DO NOT look at anyone else's answers and when you are finished put your answer in the envelope.

The diagram shows four 45°- 45°- 90° triangles. If OA = 1, find OB, OC, OD, and OE.



Question 3

Group names: _____ Date: _____

Directions: As a group complete the following problem. Show all your work. DO NOT look at anyone else's answers and when you are finished put your answer in the envelope.

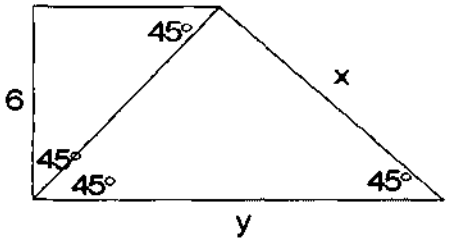
An altitude of an equilateral triangle has length $6\sqrt{3}$. What is the perimeter of the triangle?

Question 4

Group names: _____ Date: _____

Directions: As a group complete the following problem. Show all your work. DO NOT look at anyone else's answers and when you are finished put your answer in the envelope.

Find the value of x and y in the diagram below.

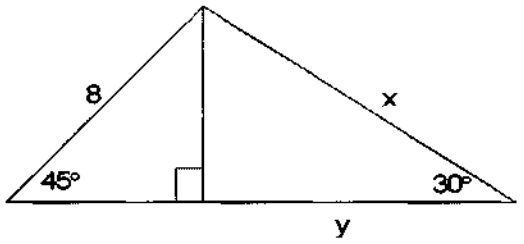


Question 5

Group names: _____ Date: _____

Directions: As a group complete the following problem. Show all your work. DO NOT look at anyone else's answers and when you are finished put your answer in the envelope.

Find the value of x and y in the diagram below.

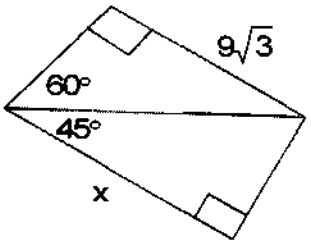


Name: _____ Date: _____

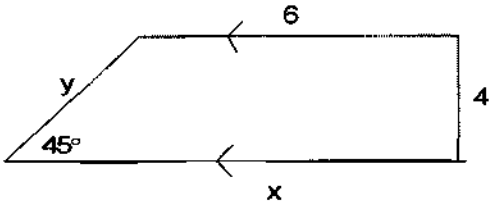
Special Triangles Worksheet

Find the lengths of the missing sides

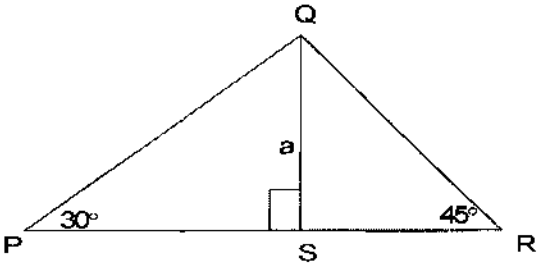
1.)



2.)

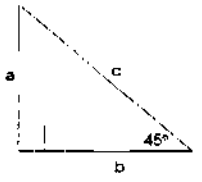


3.) Express PQ, PS, and QR in terms of a



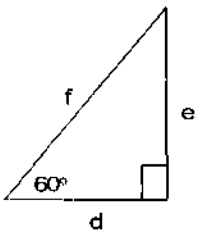
4.) If the measures of the angles of a triangle are in the ratio 1: 2: 3, are the lengths of the sides in the same ratio? Explain.

5.) Copy and complete the table using the diagram.



a	4		$\sqrt{5}$					
b		$\frac{2}{3}$					$4\sqrt{2}$	
c				$3\sqrt{5}$	6	$\sqrt{14}$		5

6.) Copy and complete the table



d	7	$\frac{1}{4}$	
e			$5\sqrt{3}$
f			

Adopted from the Geometry text

Name: _____ Date: _____

Special Right Triangle Homework

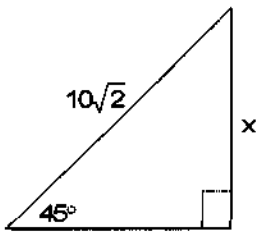
Draw a picture when necessary and show all your work.

1.) A regular hexagon is composed of 12 congruent 30°- 60°- 90° triangles. If the length of the hypotenuse of one of those triangles is $18\sqrt{3}$, find the perimeter of the hexagon.

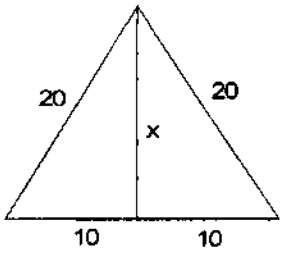
2.) A baseball diamond is in the shape of a square, with the distance between consecutive bases of 90 feet. The second baseman wants to make an out at home plate. How far must he throw the ball?

Find the value of x

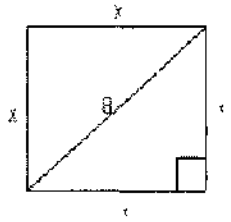
3.)



4.)

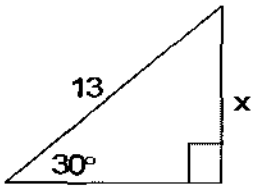


5.)

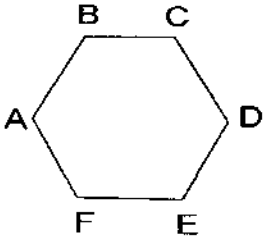


Find x.

6.)



7.) In regular hexagon ABCDEF, AB = 8. Find AD and AC.



Adopted from the Geometry text