College Focus Math

Name: Lucie Mingla **Date:8/15/015** **School/College Site: Kings Borough Community College**

Directions: *Please complete the following reflection based on your implementation of a series of lessons that build conceptual understanding and procedural knowledge into the College Focus mathematics classroom. CUNY staff will work with you to finalize your reflections for sharing with other teachers. A final draft of this document will be shared with College Focus teachers in subsequent semesters.*

PLEASE SUBMIT A FIRST REFLECTION DRAFT BY SUNDAY, AUGUST 23. EMAIL IT WITH ALL ACCOMPANYING DOCUMENTS TO Lee.Schere@cuny.edu.

A. Pre-Planning Reflection

1. **Choosing what to investigate:** In a few sentences, describe one or two math standards or objectives you feel high school juniors and seniors considered "not college-ready" struggle with consistently. What is the range of performance that you typically see in student work re: these standards or objectives?

Creating Equations (A-CED)

A. Create equations that describe numbers or relationships.
A-CED.A.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple radical and exponential functions.

PARCC: Tasks are limited to linear, quadratic, or exponential equations with integer exponents.

B. Solve systems of equations. A-REI.C.5 Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.

PARCC: Tasks have a real-world context. Tasks have hallmarks of modeling as a mathematical practice (less defined tasks, more of the modeling cycle, etc.).

Reasoning with Equations and Inequalities (A-REI)

C. A-REI.B.4 Solve quadratic equations in one variable.

NYSED: Solutions may include simplifying radicals.

a. Use the method of completing the square to transform any quadratic equation in x into an equation of the form (x-p) 2 = q that has the same solutions. Derive the quadratic formula from this form. b. Solve quadratic

equations by inspection (e.g., for x 2 =49), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a + bi, a - bi for real numbers a and b

PARCC: Tasks do not require students to write solutions for quadratic equations that have roots with non-zero imaginary parts. However, tasks can require the student to recognize cases in which a quadratic equation has no real solutions.

2. **COFO materials:** Identify the specific CoFo lessons and/or activities by lesson # and relevant activity #s that address these standards.

In the teacher's edition you can find most of the word problems that are related to the standard (A-CED & A-REI) on pages 677-712. I have some records related to the Teaching moments and students work. For the matter of limited time available and time consuming to work on those problems because of the students' struggle I have selected some of the main activities in that portion. However regarding the importance of the standards mentioned above for building up strong fundamental algebraic skills I have worked in most of them in oppose with other sections that may have been much longer and with repetitions (in general puzzles).

Algebra Module, Section 4-Lesson 0 (A 4.0): Problem Solving

CC Standards: A.CED.1, A.CED.2, A.REI.5 CC Practices: MP1

Algebra, Section 4-Lesson 0 (A 4.0)
Activity 1, Part 1
Activity 1, Part 2 Sharing solutions

Algebra Module, Section 4-Lesson 1 (A 4.1): Use a Table to Generalize
CC Practices: MP1, MP5 CC Standards: A.CED.1, A.CED.2

Algebra, Section 4-Lesson 1 (A 4.1) (Warm up)
Activity 1, Part 1
Activity 1, Part 2
Activity 2
Exit Ticket page 692
A 4.1: Mini-Lesson Page 694
A 4.1: Activity 1, Parts 1 and 2, Page 695
A 4.1 Exit Ticket Page 696

Algebra Module, Section 4-Lesson 21 (A 4.21): Thinking about Rates
CC Practices: MP1, MP4, MP8 CC Standards: A.CED.1, A.CED. 2, A.REI.6, F.BF.1

Algebra, Section 4-Lesson 21 (A 4.21), Warm-up, P. 699
Mini-Lesson to follow Warm-up
Activity 1.1
(No Activity 2 I had done similar problems to this with warms etc, No Problem Set)

3. **Getting Started:** What underlying mathematics do students need to know already to be successful in this activity (prior knowledge)?

- **Quantity reasoning.**
- **Organizing table values and plotting ordered pairs of numbers in the graph.**
- **Guessing and checking.**
- **Solving problems using arithmetic skills and concepts.**

4. **Learning Objectives:** What mathematical understanding(s) do you hope students construct through engagement in this activity? What particular challenges do you anticipate with regard to procedural & conceptual understanding?

- **Objectives:**

- **Solving the problem using arithmetic, and then algebra by generalizing the information using variable(s).**
- **Drawing diagrams to organize and visualize possible solutions**
- **Writing equations given information about relationships between known and unknown quantities**
- **Writing systems of equations given more than one relationship between variables (quantities)**
- **Graphing and being able to interpret the solution as coordinates of points in the graph.**
- **Solving linear equations and systems of linear equations in two variables**
- **Writing a proportion to solve the problem**

- **Challenges:**

- **Writing the linear and/or quadratic equation in one variable and solve the problem.**
- **Writing the system of linear equations to find the solution of the problem.**
- **Writing the proportion and solving it to find the solution of the problem.**

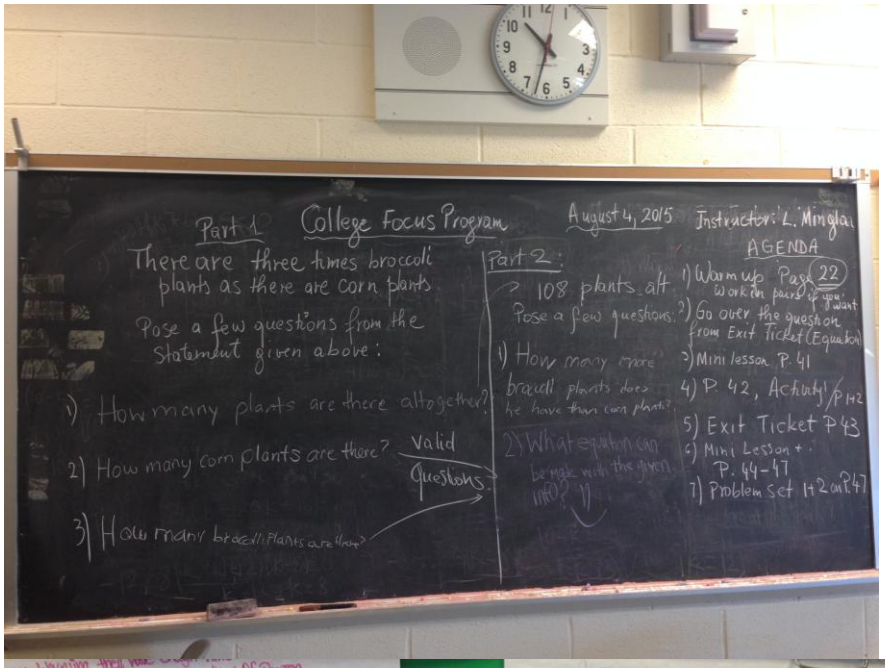
5. **Implementation Challenges:** What specific classroom structures, materials needed, or activities will pose additional challenges to implementation (e.g. task depends on reading lots of text, students work in groups outside, students need 1-to-1 computers, etc.)?

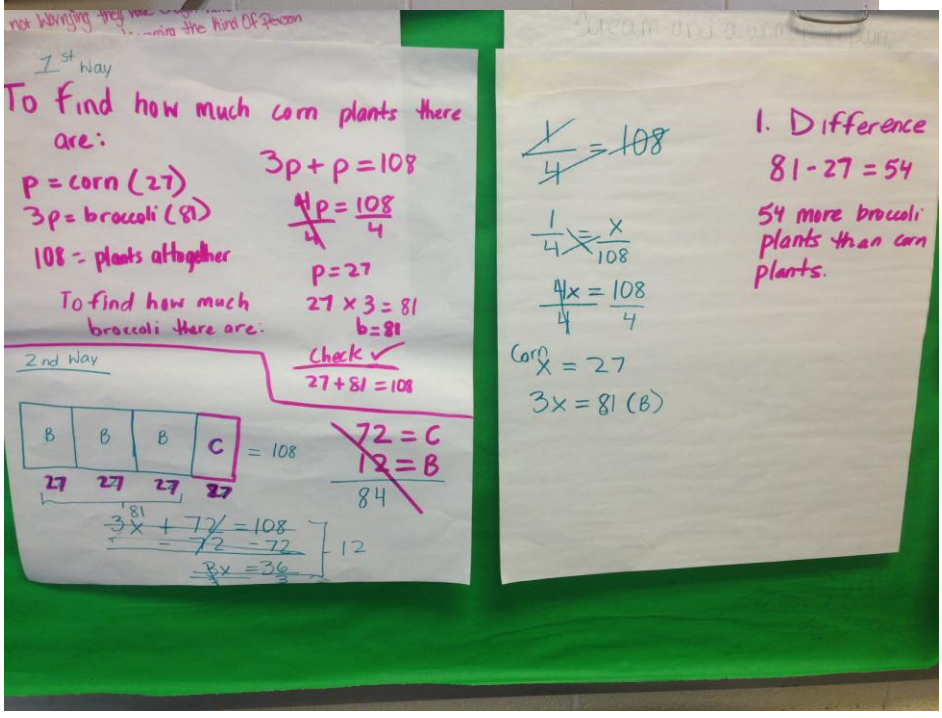
- **Having computers would be great. They can create tables, graph and other visuals to understand the problem and make sense. (developing computer skills beside the algebraic skills).**
- **Large grid charts for graphing when they have group work to do presentations.**
- **Long rulers 15-20 inches to draw graphs.**
- **The reading was quiet fair. They need to make sense out of real life math problems and their solutions.**

B. Post-Implementation Reflection

1. **Focus on Student Work:** How does the students' performance compare with what you anticipated? Please label and photo two different student's work documents and attach them here. In the space below, reflect on the conceptual and procedural understanding in the context of this work.

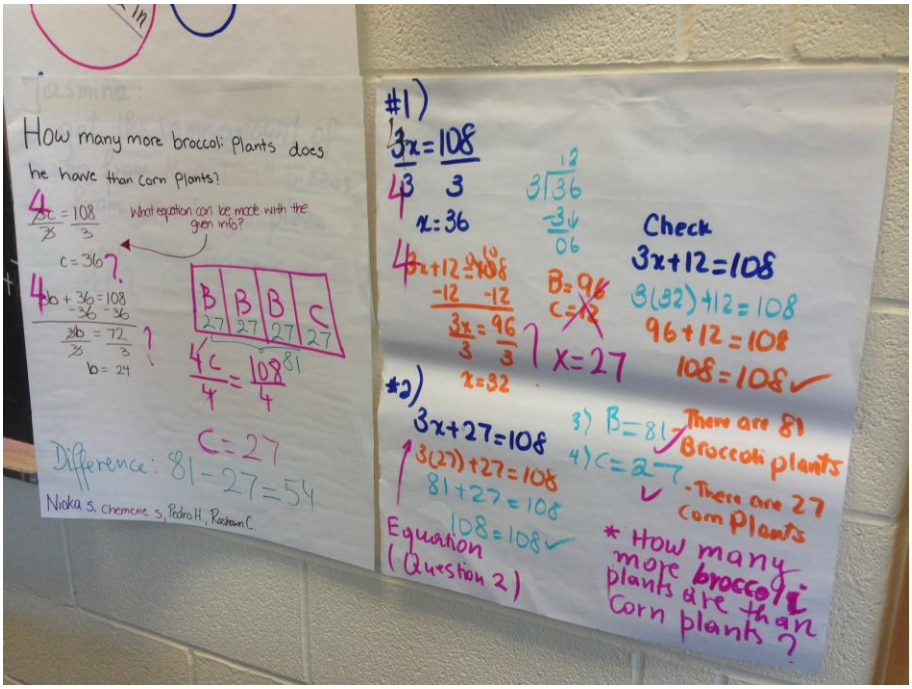
- **Sample 1 Reflection:**





This group of students has solved the problem in multiple-ways: Arithmetic and algebraic method, writing the equation and solving it, building the proportion and solving it. They show a clear understanding of the problem and use various approaches to solve it. (4pt+1pt for presentation=5pt)

Sample 2 Reflection:



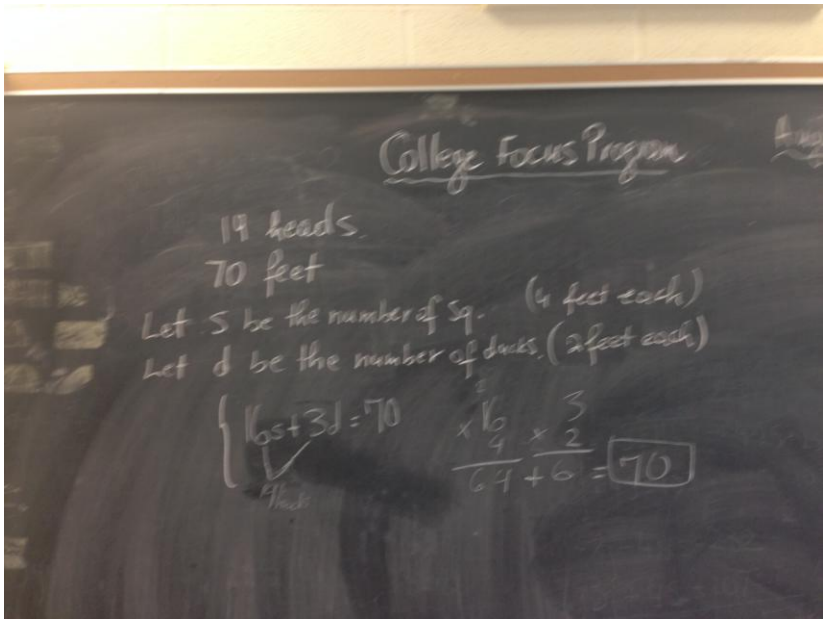
This group is misunderstanding the fact that if there is Broccoli plants three times as corn plants means that together are not three equal parts but four. That is how they are missing creating a correct equation to find the solution. However in point 2 they have found the numbers and checked them. The equation 3x+27=108 is unclear as how they have formed it Once they started presenting it they understood they were wrong. After discussing as class they were clear. (Overall 2pt)

Rubric:

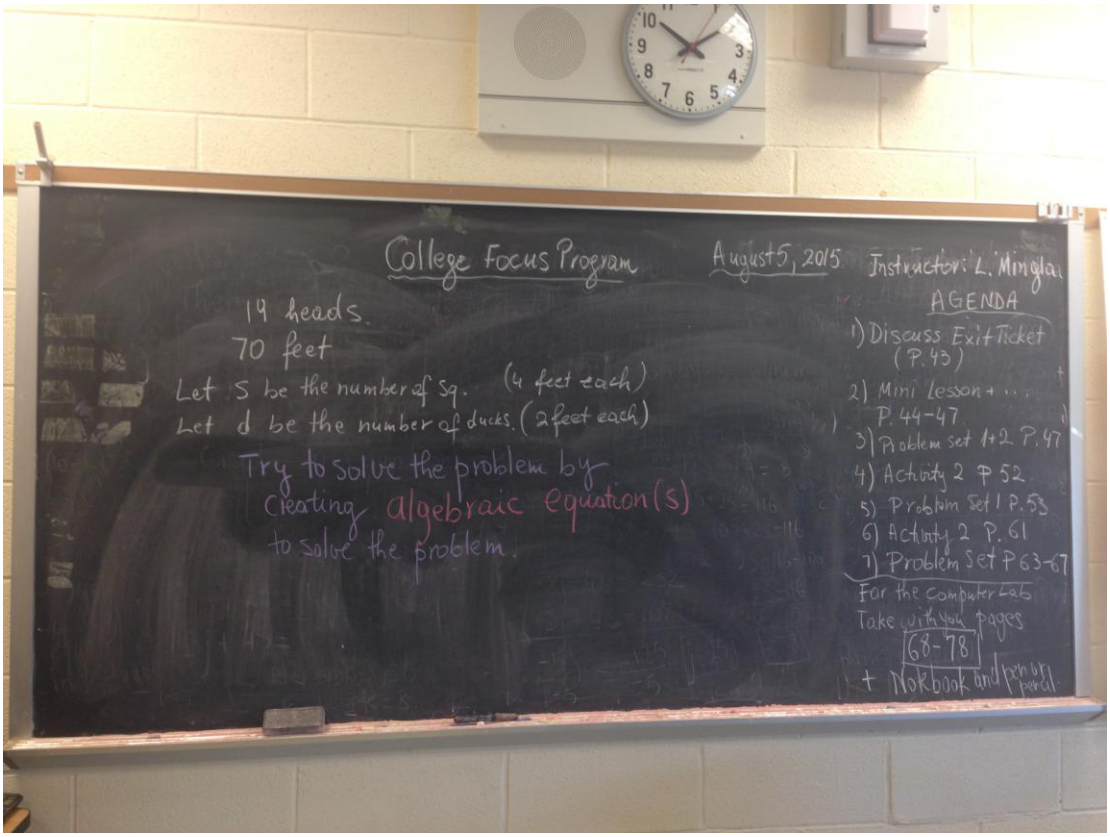
1- **4pt: 81 and 27 solving the problem in arithmetic way and at least in algebraic way.**
2- **3pt: 81 and 27 solving the problem in arithmetic way, written the equation/proportion correctly, but calculation errors may occur.**
   Or: the problem is solved using 2 different arithmetic ways involving diagrams sketches etc.
3- **2pt: the problem is solved in only one way no errors occur and it may be illustrated to explanations and/or diagrams.**
4- **1pt: 81 and 27 just written 3·27+27= 108**
5- **0 pt only numbers may be written no explanations or calculations written.**
   Or there is no solution shown.

One point is available for the presentation.

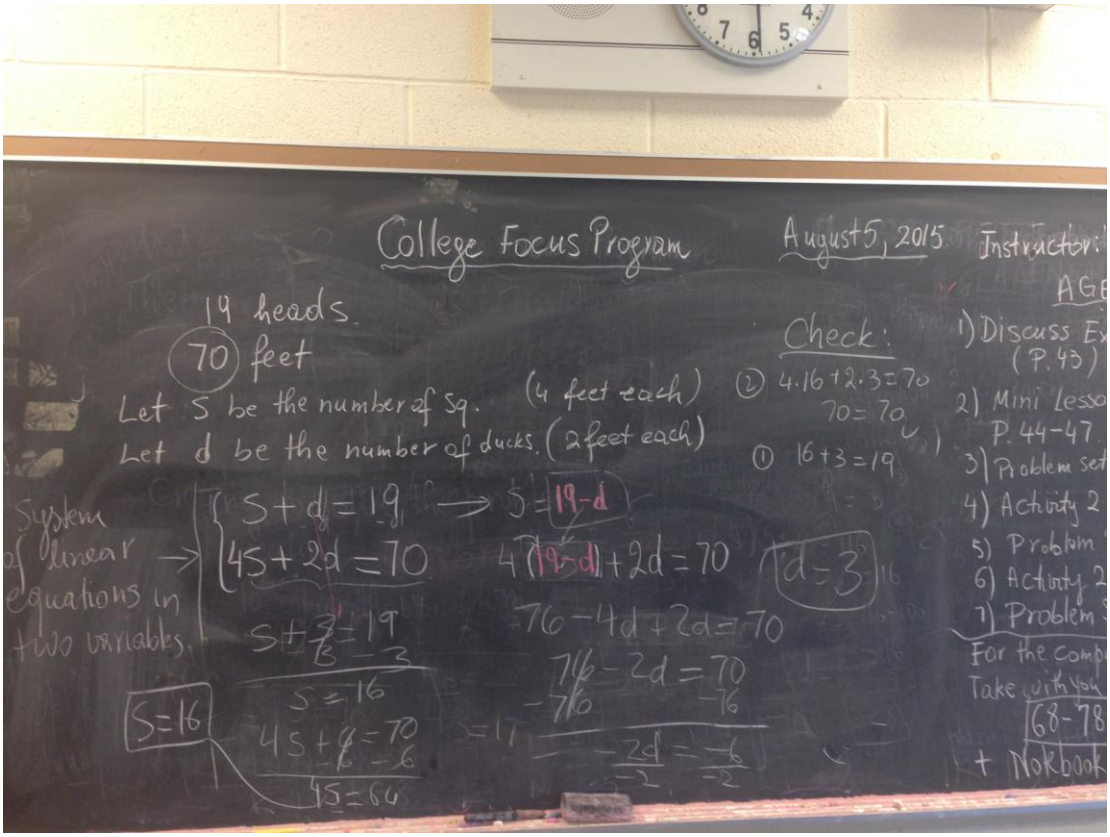
My Intervention to build up stronger skills in solving the word problems:

- 

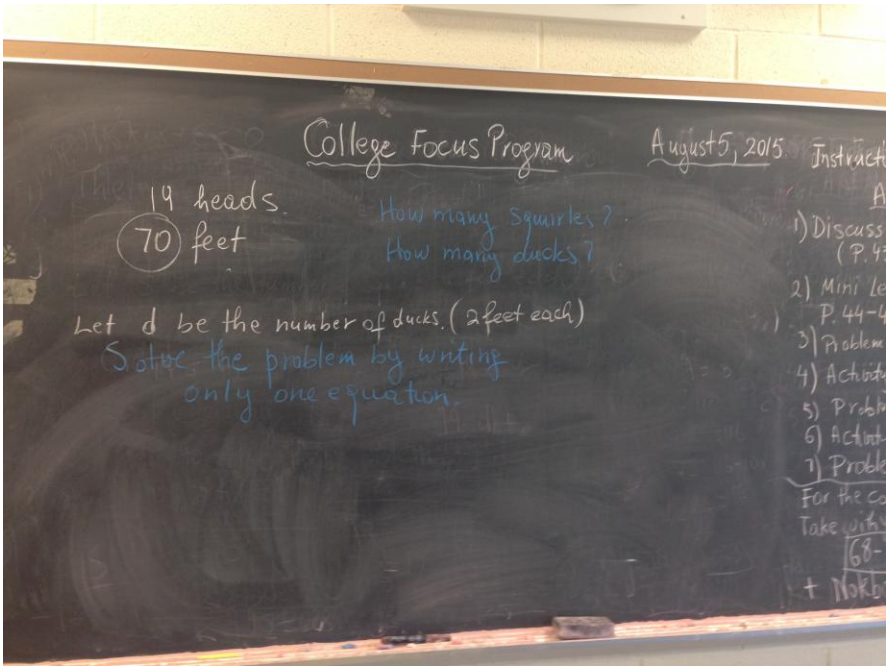
This is the student's work on the board. Most of the students got to solve it using arithmetic. It is interesting that the student and most of them did the same thing, wrote the equation in two variables and found the pair of numbers as solution using guess and check method.



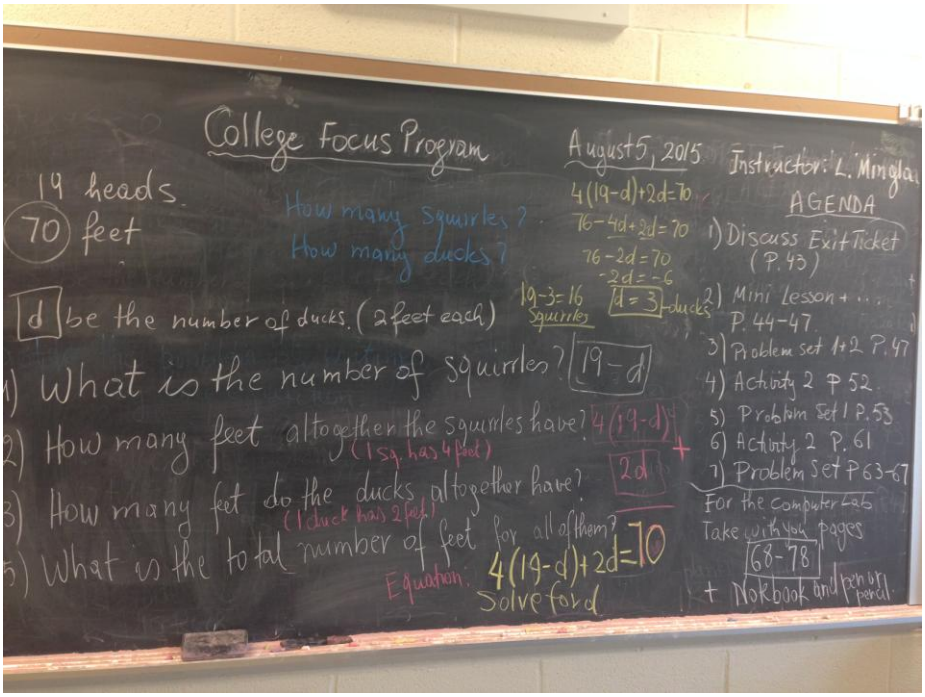
After that students were asked to solve the problem using any algebraic method by writing the equation or equations as you can see on the board. I was surprised that they thought about the system of equations before they could think of only one equation to solve it.

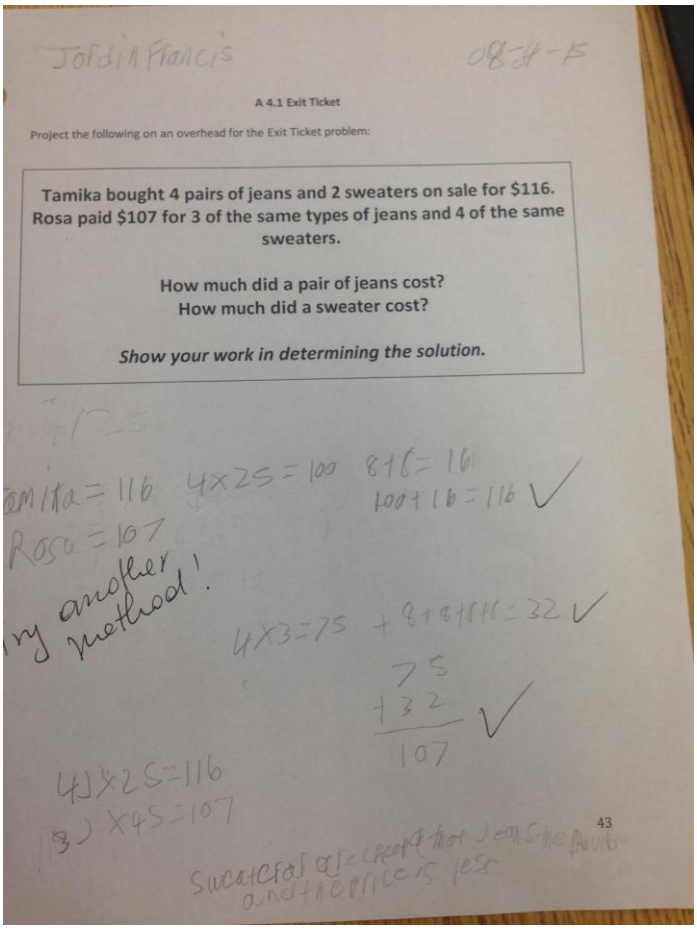


Solving the system was a challenge for them. Questioning step by step guided them to the solution. The student has done the solution on the board.

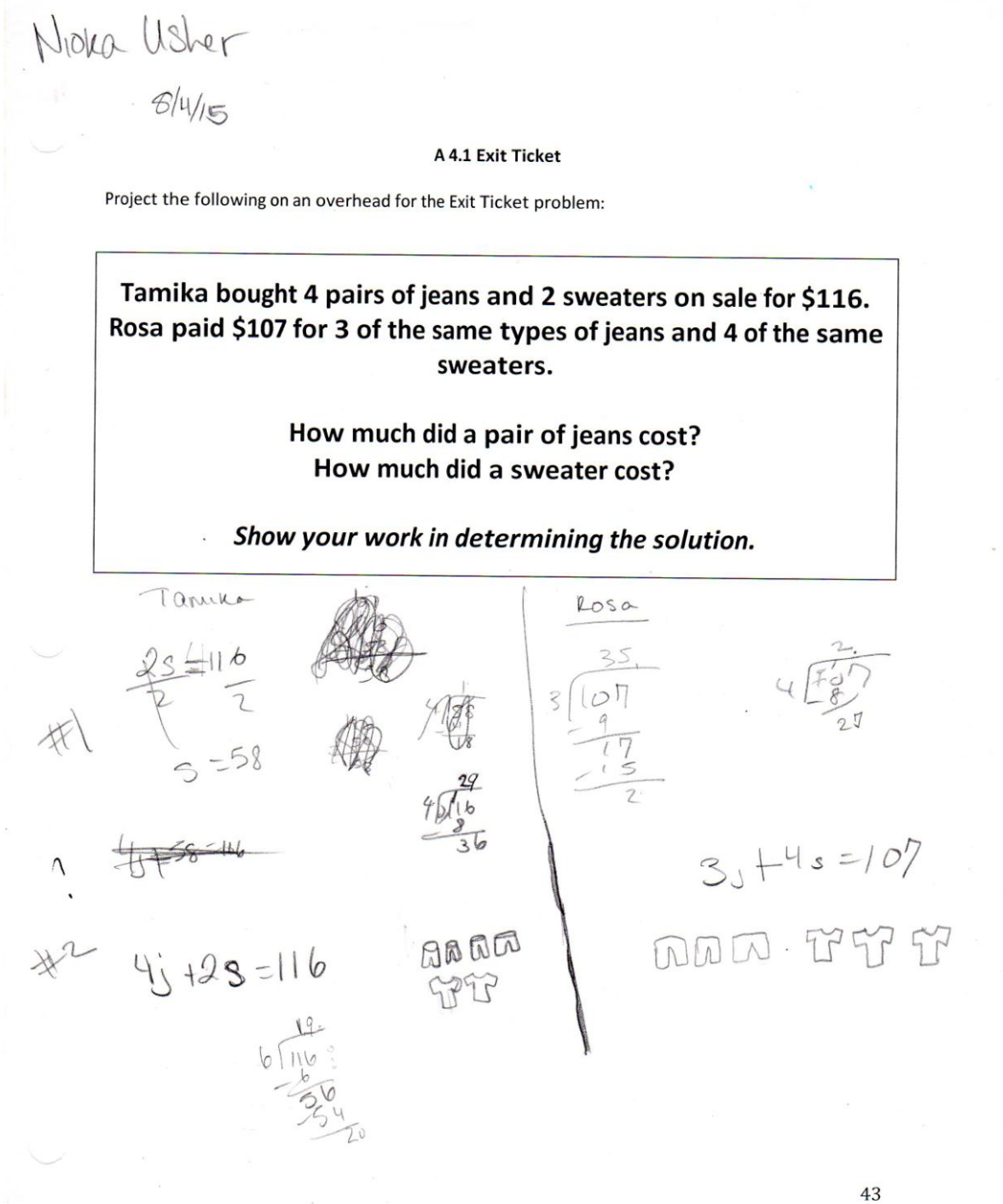


After that, I asked the students to write only one equation to solve the problem.
I gave them a few minutes to think about it, but I didn't get any response that would lead to the equation. So I set up a serial of questions as you can see on the board in the picture below:





- **Student solved the problem using arithmetic. Many of them did so.**



Nioka Usher

8/4/15

A 4.1 Exit Ticket

Project the following on an overhead for the Exit Ticket problem:

Tamika bought 4 pairs of jeans and 2 sweaters on sale for $116. Rosa paid $107 for 3 of the same types of jeans and 4 of the same sweaters.

How much did a pair of jeans cost?
How much did a sweater cost?

Show your work in determining the solution.

Tamika

Rosa

43

Some of the students attempted to solve it using algebra but didn't get to solve it completely with algebraic way. They struggled with solving the systems. Most of them had created the two equations correctly, but they couldn't get to solve it. A common mistake was dividing the total cost with the number of items even though when I asked them next

day they knew that the two items have different prices. After I checked the Exit Ticket the next day I discussed it in the morning. When I asked them how they could find out which item is cheaper they pointed out the fact that the sweaters must be cheaper, and they justified it by highlighting the fact that when the number of sweaters was bigger the cost was less even though the number of items was greater.

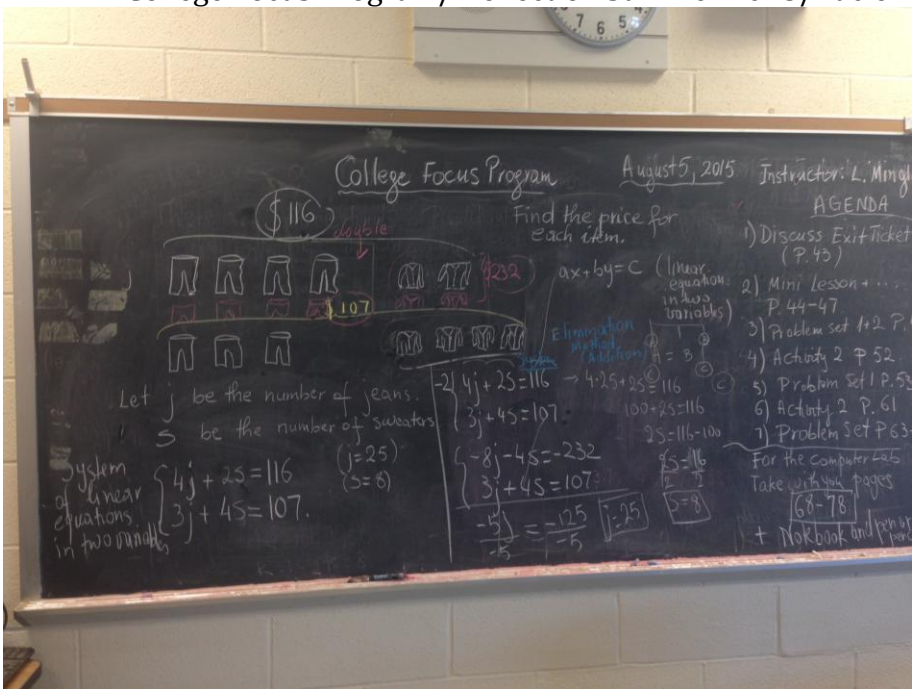
I asked them if they can have an arithmetic structured solution without guessing and checking. They struggled trying to figure it out and only when I asked them to see what the situation would be if Tamika bought twice the amount that she bought while Rosa doesn't change anything, they could figure out through discussing with each other that it would be the same number of sweaters but the number of pairs of jeans would be 5 more for Tamika and so the difference of costs would be paid for them.(The sense of why we make the two equations with opposite coefficients and add to eliminate in the system).

2. **Prior Knowledge and Engagement:** How would you describe student engagement with these materials? Were students able to employ their prior knowledge in these tasks? Did they have the tools to get started?

They did have the tools to get started, arithmetic tools, but even though I had tried to generalize the situations as I have showed in some simples in this reflection, they still struggled with variables in expressions, equations etc. It took a lot of time and effort to make students capable to solve these types of problems algebraically. Regarding the fact that even arithmetically some of them are not strong enough I think more time was needed for them. Materials are challenging and could be digestive with a careful selection and in a little longer sequence of time.

3. **Evidence of student learning:** Did students have opportunities to construct new mathematics through participation in this activity? If so, did they meet the learning objectives that you indicated in #4 of the pre-planning? What is your evidence for student learning? If relevant, reflect on any rubrics you used to determine student learning.

They definitely had the opportunity to construct new mathematics skills through participation in these activities. They showed it in their constructive response, attempting to solve the problem in different ways, using graphs, diagrams and other visuals many times they got to solve the problems in a productive and unique ways as you can see in the simples provided (Regard the fact that I didn't keep records for most of the work). They persevered and struggled but it was valuable. They worked pretty well in teams and presented their work properly to their pairs. They had a very good progress in simpler exercises such as solving linear equations, completing puzzles, factoring, solving quadratic equations etc. I am showing just one of the test simples below.

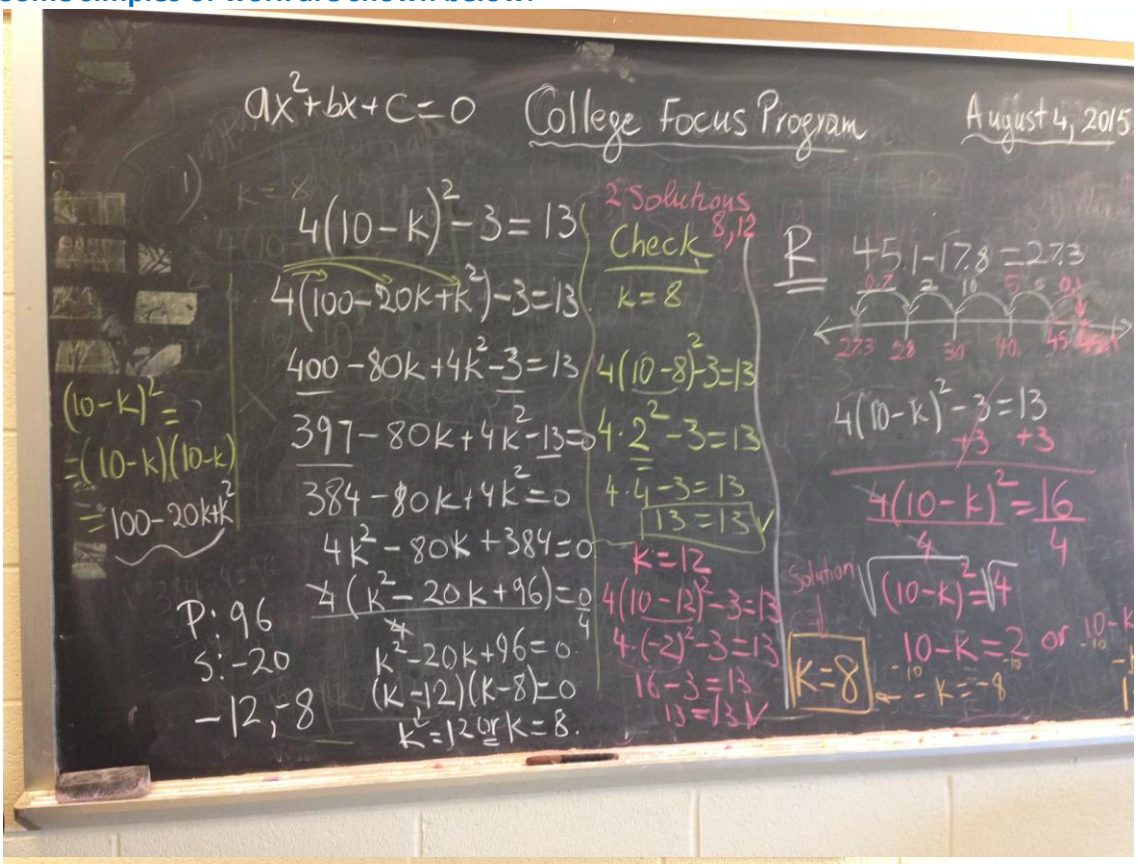


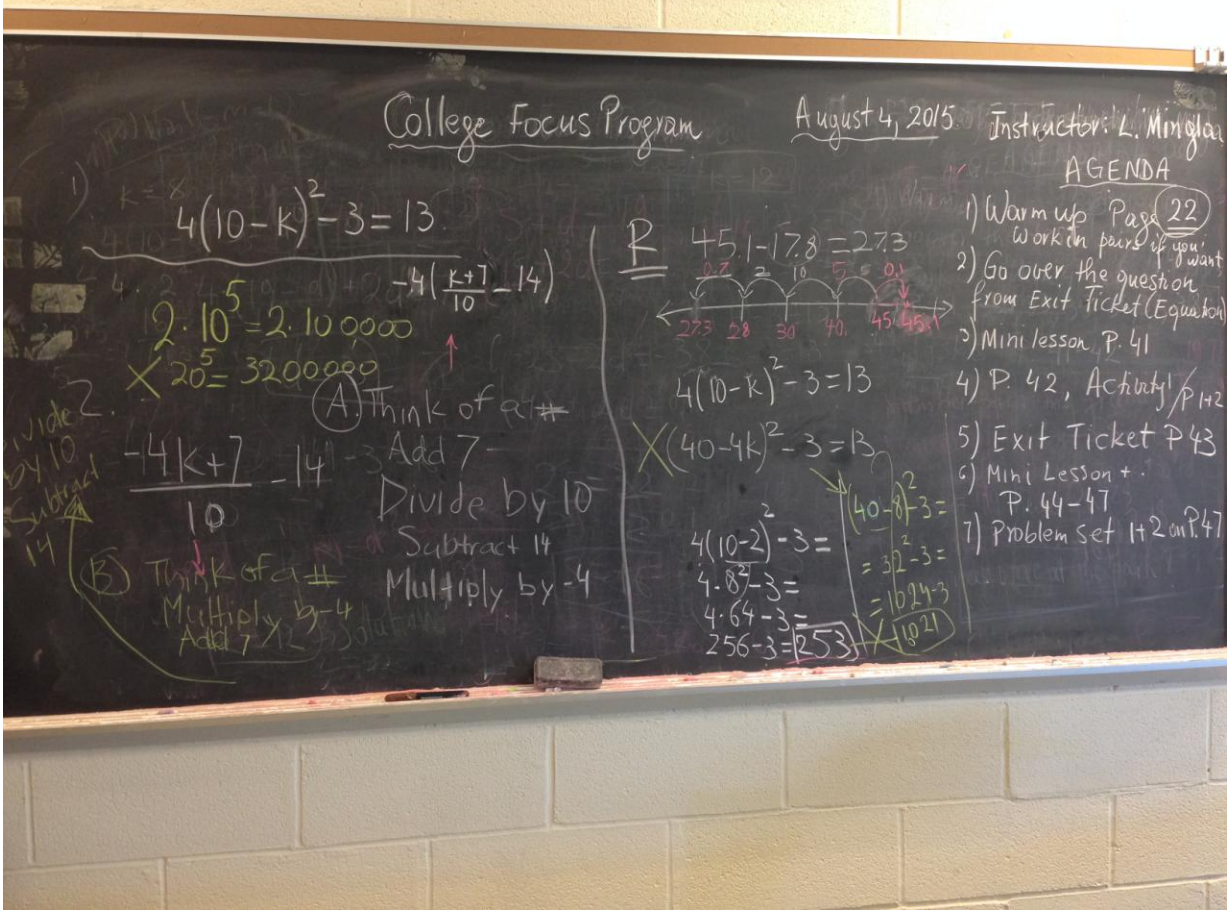
I think that I have aligned my constructive work toward solving word problems using algebra by starting with writing algebraic expressions, writing equations, proportions etc Building a strong algebraic foundation needs more time and effort, but I think that my students are challenged in this certain time of taking this course. By the time they got better. I don't have evidence for everything, but you can have the idea of how the structure of the work has been with these simples below:

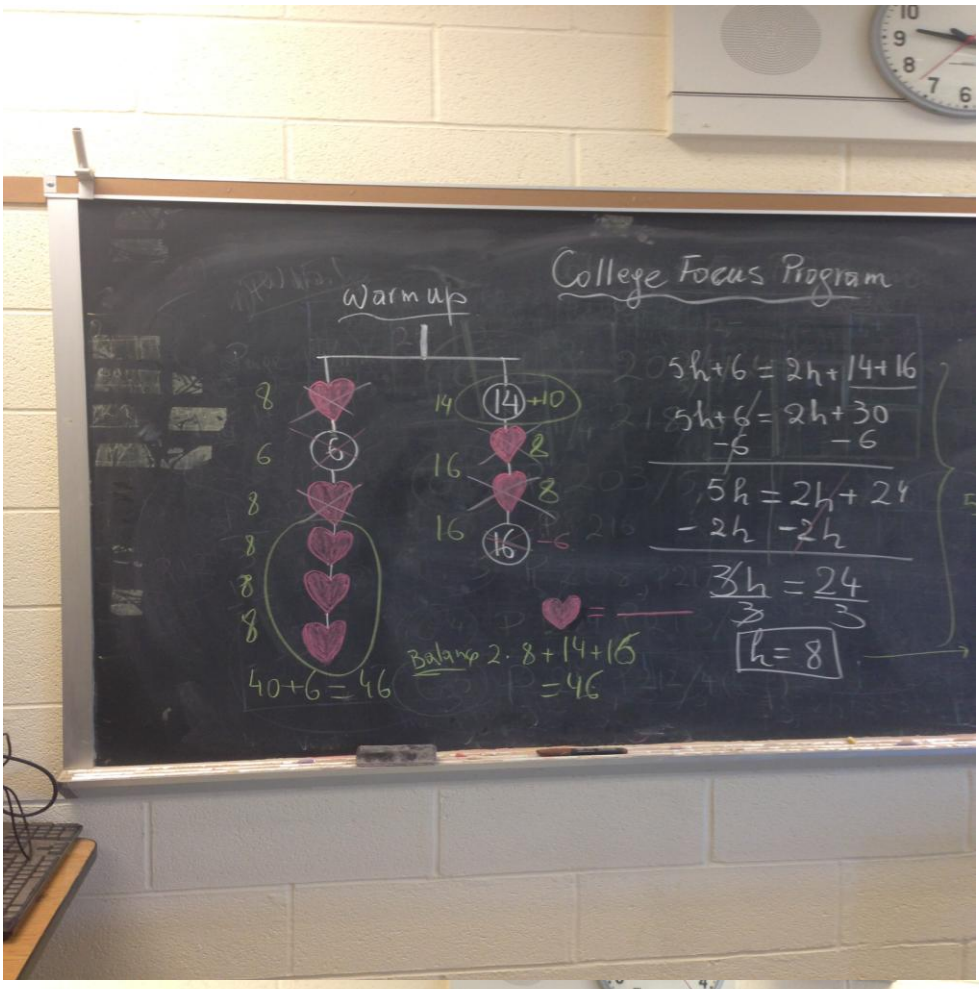
4. **Task**: What changes did you make or would you recommend to a colleague who wanted to teach using these materials? If you've made modifications to the materials you used, please consider including them as an attachment.

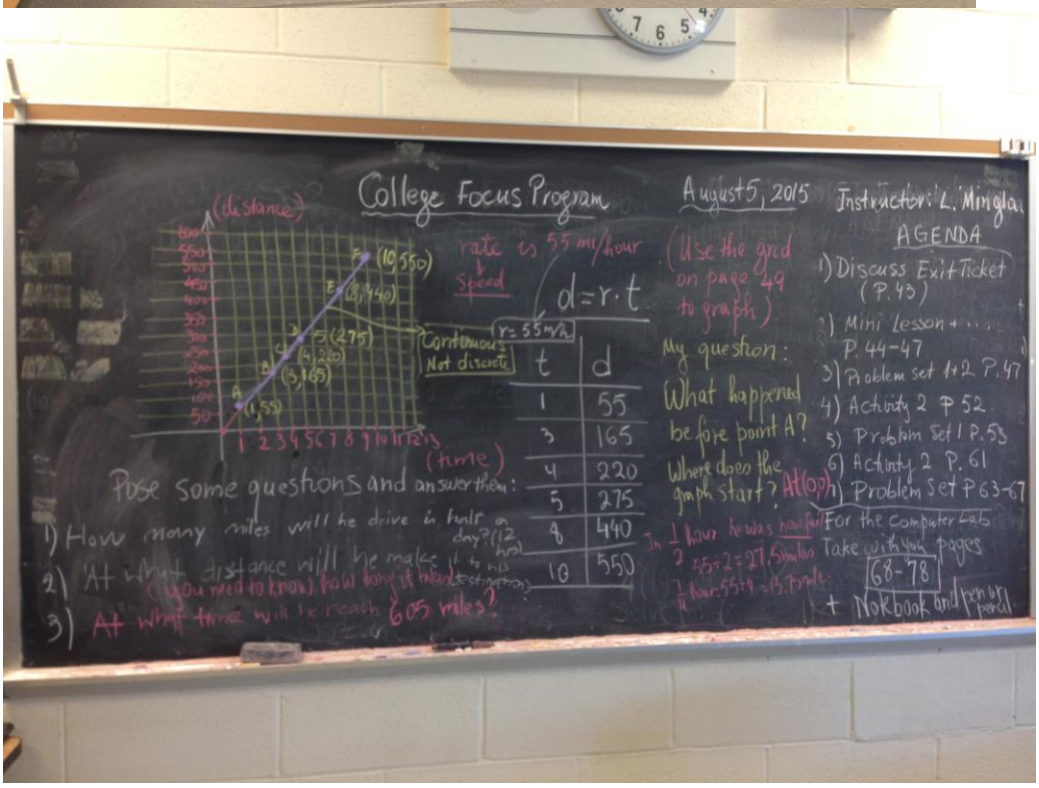
I think that taking a picture sometimes before the break after a long time work activity has the value of looking at the selections as well, because in many of them you can see the agenda. Overall I would love to teach students that have taken this course. It is important that they comprehend it in an appropriate way and time as foundation of pre-algebra and algebra and have them ready for next level in mathematics. The time was really limited but I think it was beneficial any way.

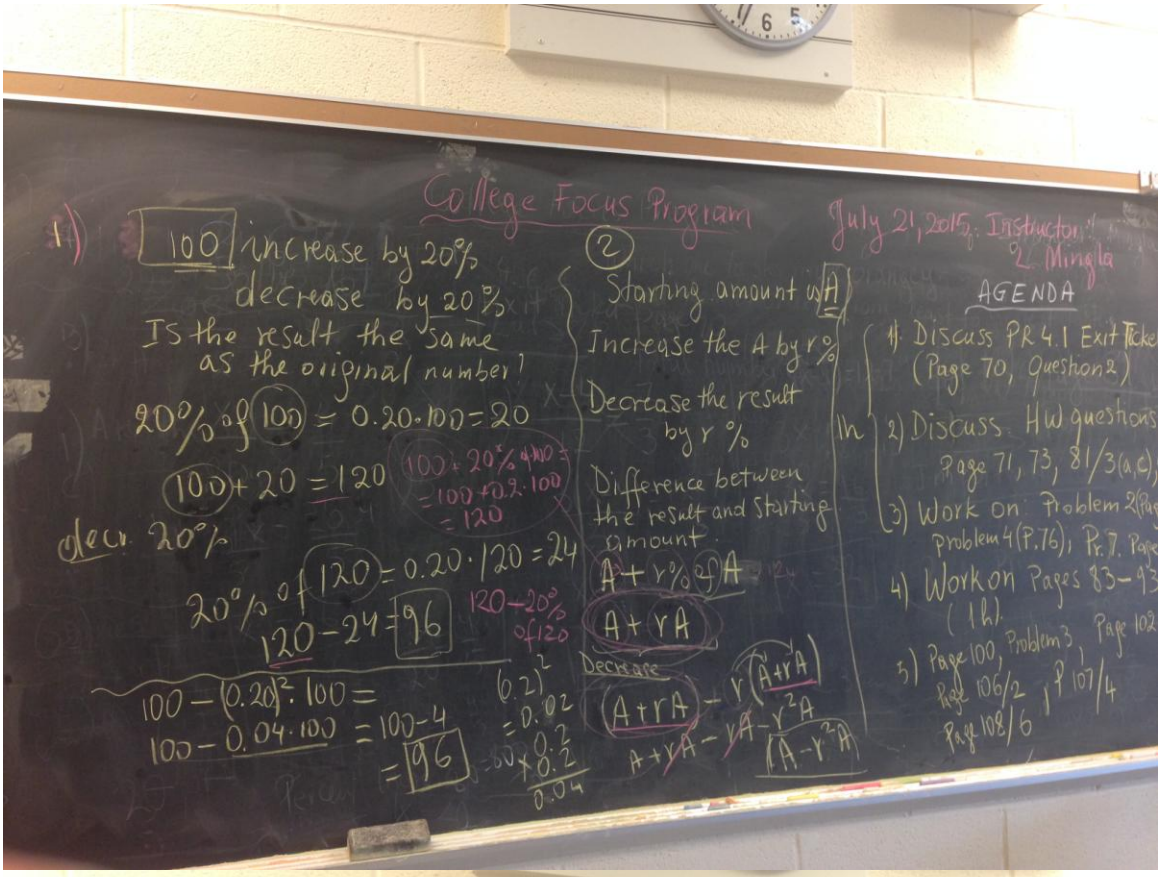
Some simples of work are shown below:

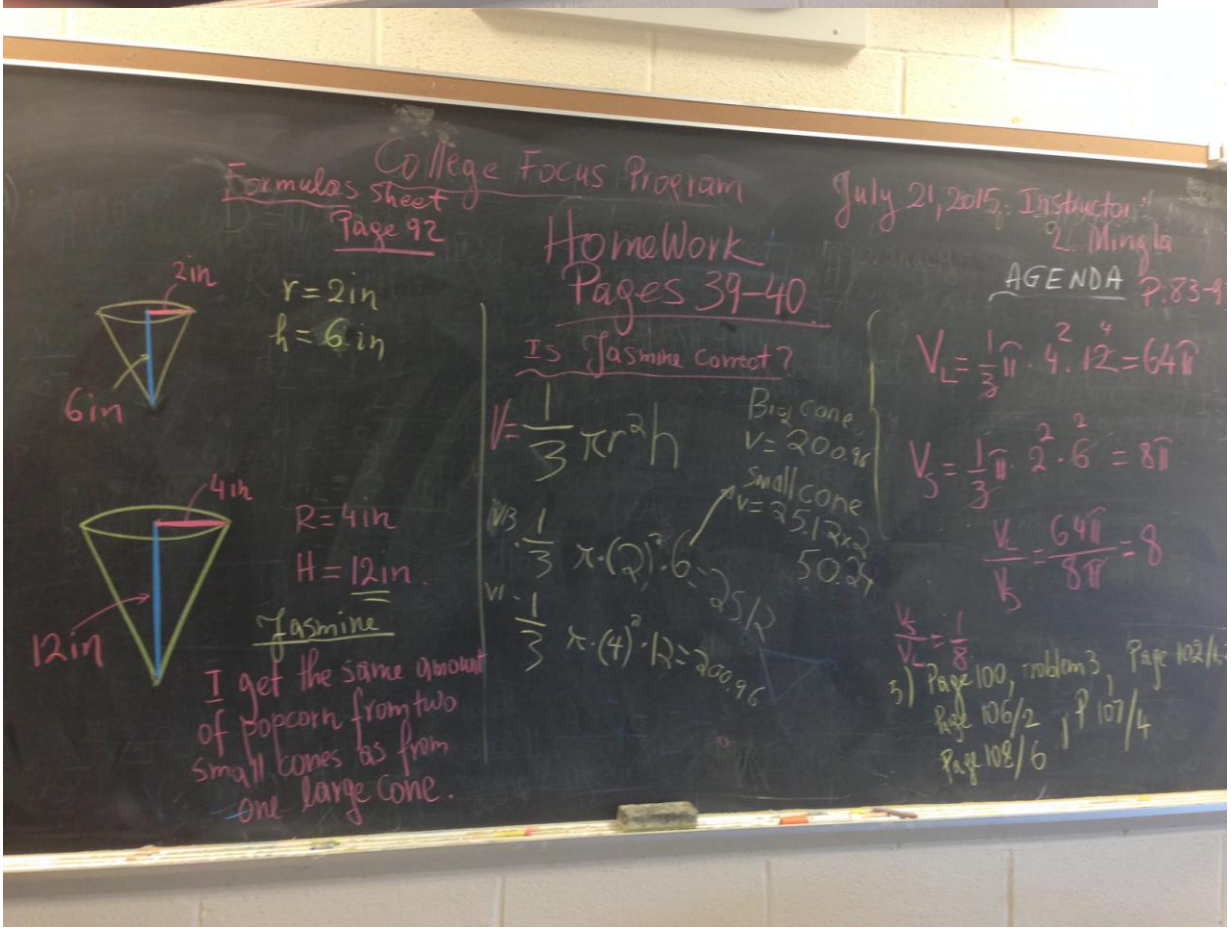


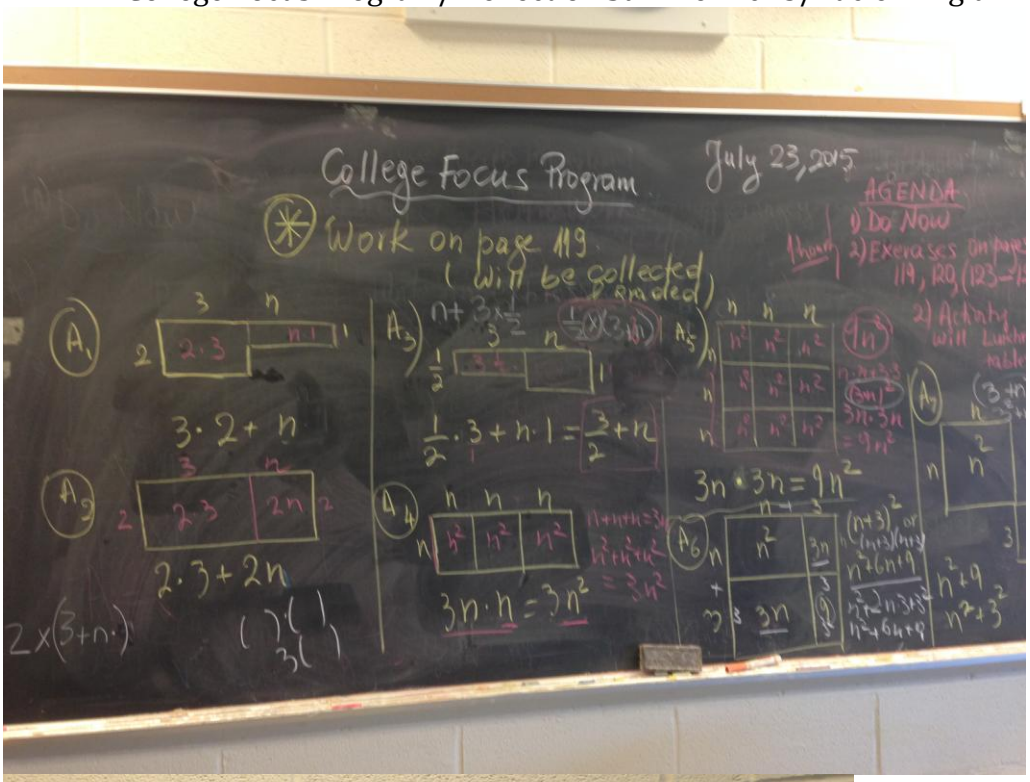


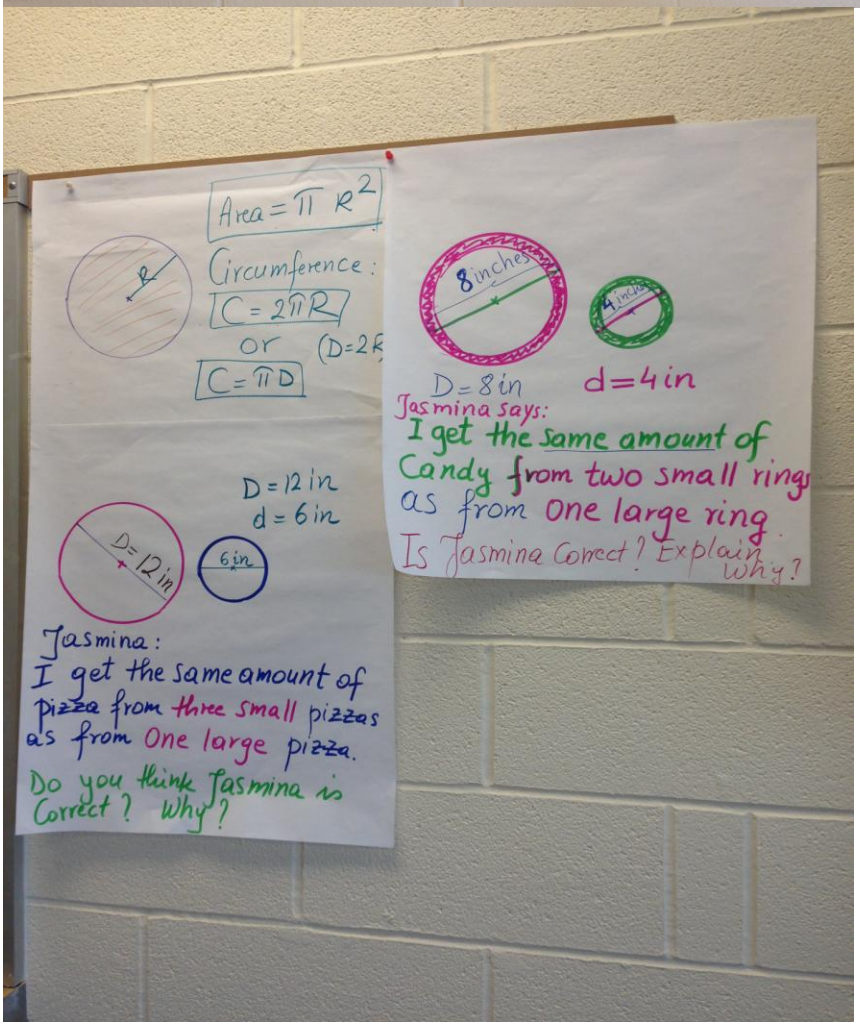

College Focus Program
Warm up
5h+6 = 2h+14+16
5h+6 = 2h+30
-6 -6
5h = 2h+24
-2h -2h
3h = 24
3 3
h = 8
40+6=46
Balance 2·8+14+16
=46

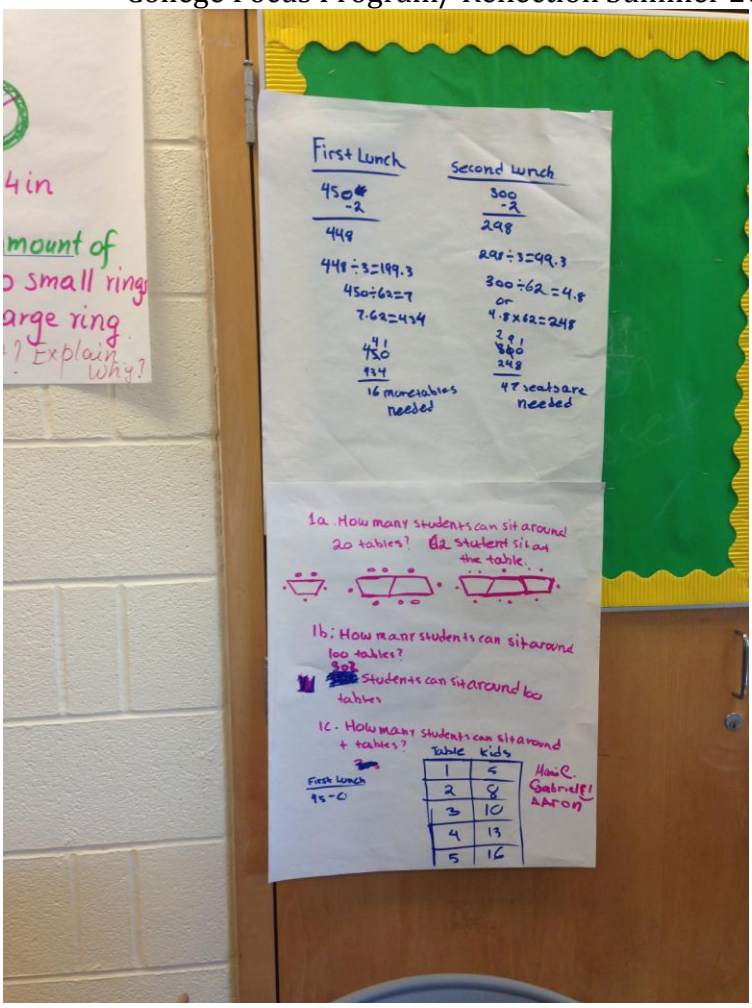

College Focus Program
August 5, 2015
Instructor: L. Mingla
AGENDA
1) Discuss Exit Ticket (P. 43)
2) Mini Lesson + ... P. 44-47
3) Problem set 1+2 P. 47
4) Activity 2 P. 52
5) Problem Set 1 P. 53
6) Activity 2 P. 61
7) Problem Set P 63-67
(distance)
(time)
rate is 55 mi/hour
Speed
d=r·t
r=55 mi/h
Continuous
Not discrete
t | d
1 | 55
3 | 165
4 | 220
5 | 275
8 | 440
10 | 550
(Use the grid on page 49 to graph)
My question:
What happened before point A?
Where does the graph start? At (0,0)
Pose some questions and answer them:
1) How many miles will he drive in half an hour?
2) At what distance will he make it to his destination?
3) At what time will he reach 605 miles?
For the computer lab
Take with you pages 68-78
+ Notebook and pencil

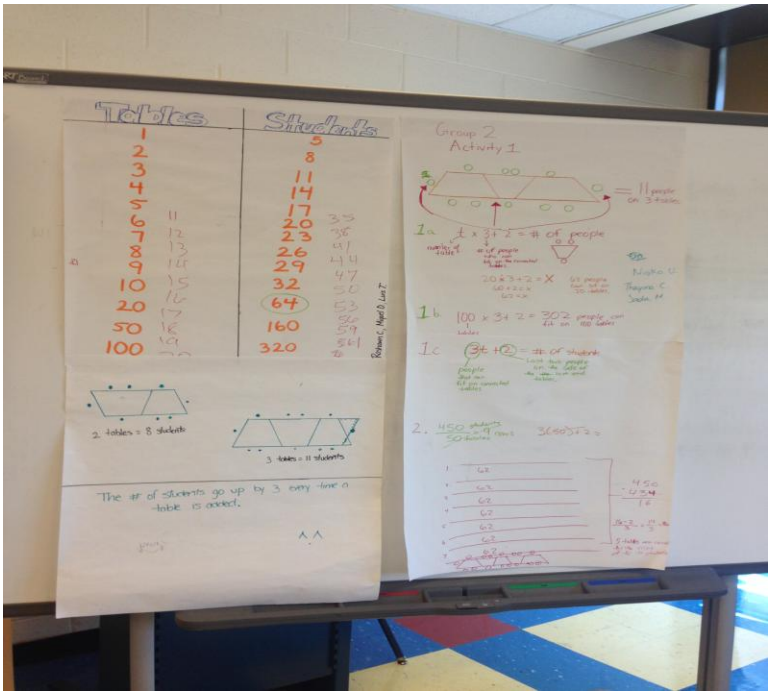

College Focus Program
July 21, 2015; Instructor: L. Mingla
1) 100 increase by 20% decrease by 20%
Is the result the same as the original number?
20% of 100 = 0.20·100 = 20
100 + 20 = 120
100 + 20% of 100 = 100 + 0.2·100 = 120
decr. 20%
20% of 120 = 0.20·120 = 24
120 − 24 = 96
120 − 20% of 120
100 − (0.20)·100 = 100 − 0.04·100 = 100 − 4 = 96
2) Starting amount is A
Increase the A by r%
Decrease the result by r%
Difference between the result and starting amount
A + r% of A
A + rA
Decrease
(A + rA) − r(A + rA)
A + rA − rA − r²A
(A − r²A)
AGENDA
1) Discuss PR 4.1 Exit Ticket (Page 70, Question 2)
2) Discuss HW questions Page 71, 73, 81/3(a,c),
3) Work on Problem 2(Pa... Problem 4(P.76), Pr. 7, Page...
4) Work on Pages 83–93 (1h)
5) Page 100, Problem 3, Page 102 Page 106/2, P 107/4 Page 108/6

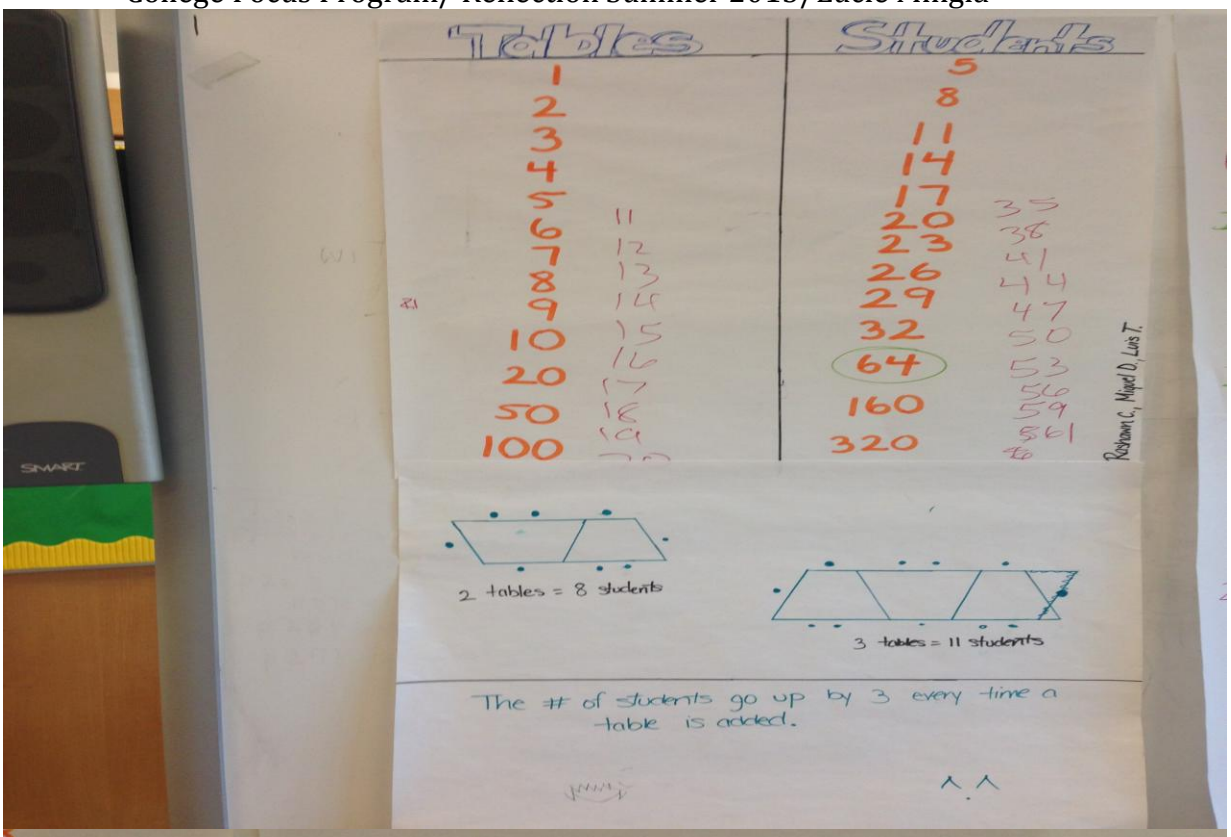

College Focus Program
July 21, 2015; Instructor: L. Mingla
Formulas sheet Page 92
HomeWork Pages 39–40
AGENDA P.83-9
2in
6in
r = 2in
h = 6in
4in
12in
R = 4in
H = 12in
Jasmine
I get the same amount of popcorn from two small cones as from one large cone.
Is Jasmine correct?
V = 1/3 πr²h
Big cone V = 200.96
Small cone V = 25.12 × 2 = 50.24
V3 = 1/3 π·(2)²·6 = 25.12
V1 = 1/3 π·(4)²·12 = 200.96
V_L = 1/3 π·4²·12 = 64π
V_S = 1/3 π·2²·6 = 8π
V_L/V_S = 64π/8π = 8
V_S/V_L = 1/8
5) Page 100, Problem 3, Page 102/4 Page 106/2, P 107/4 Page 108/6

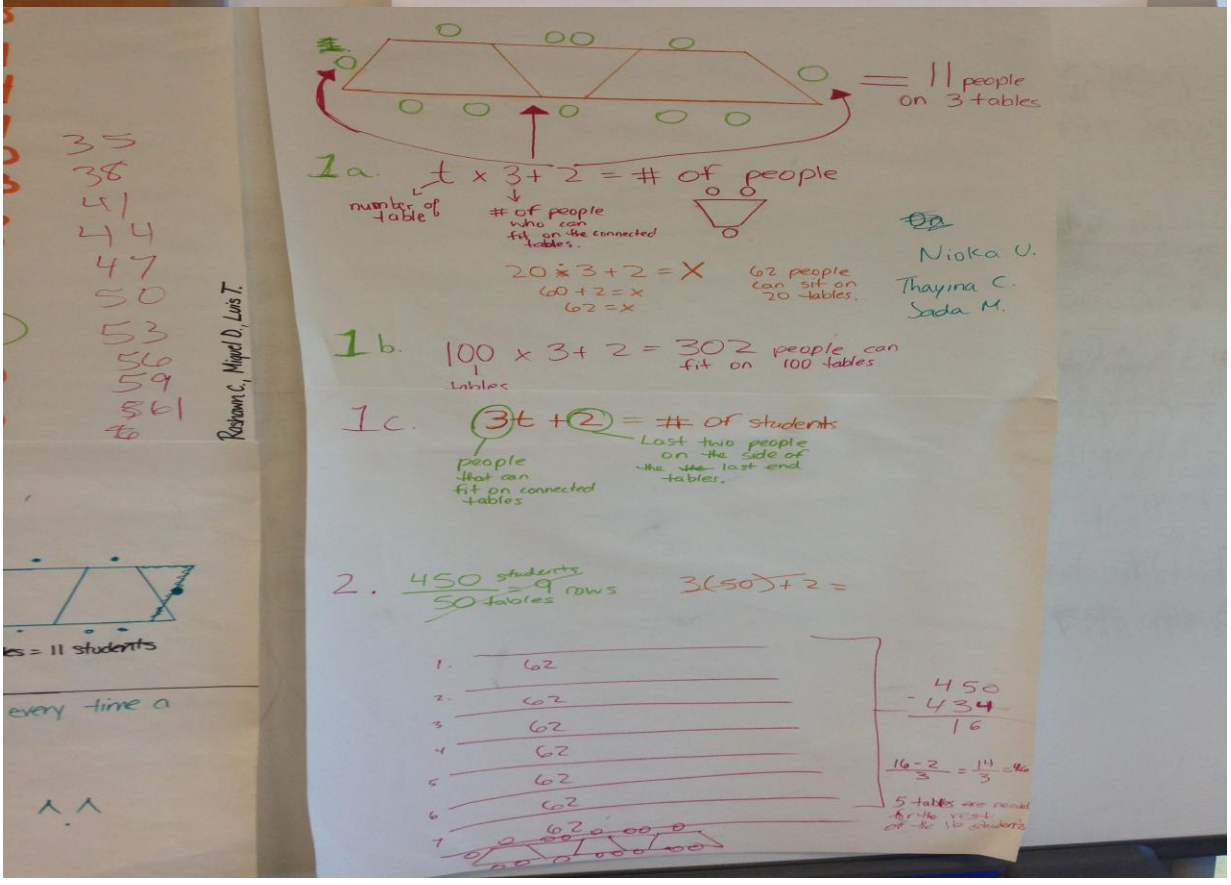

College Focus Program
July 23, 2015
AGENDA
1) Do Now
Work on page 119
(will be collected and graded)
$3 \cdot 2 + n$
$2 \cdot 3 + 2n$
$2 \times (3+n)$
$\frac{1}{2} \cdot 3 + n \cdot 1 = \frac{3}{2} + n$
$3n \cdot n = 3n^2$
$3n \cdot 3n = 9n^2$

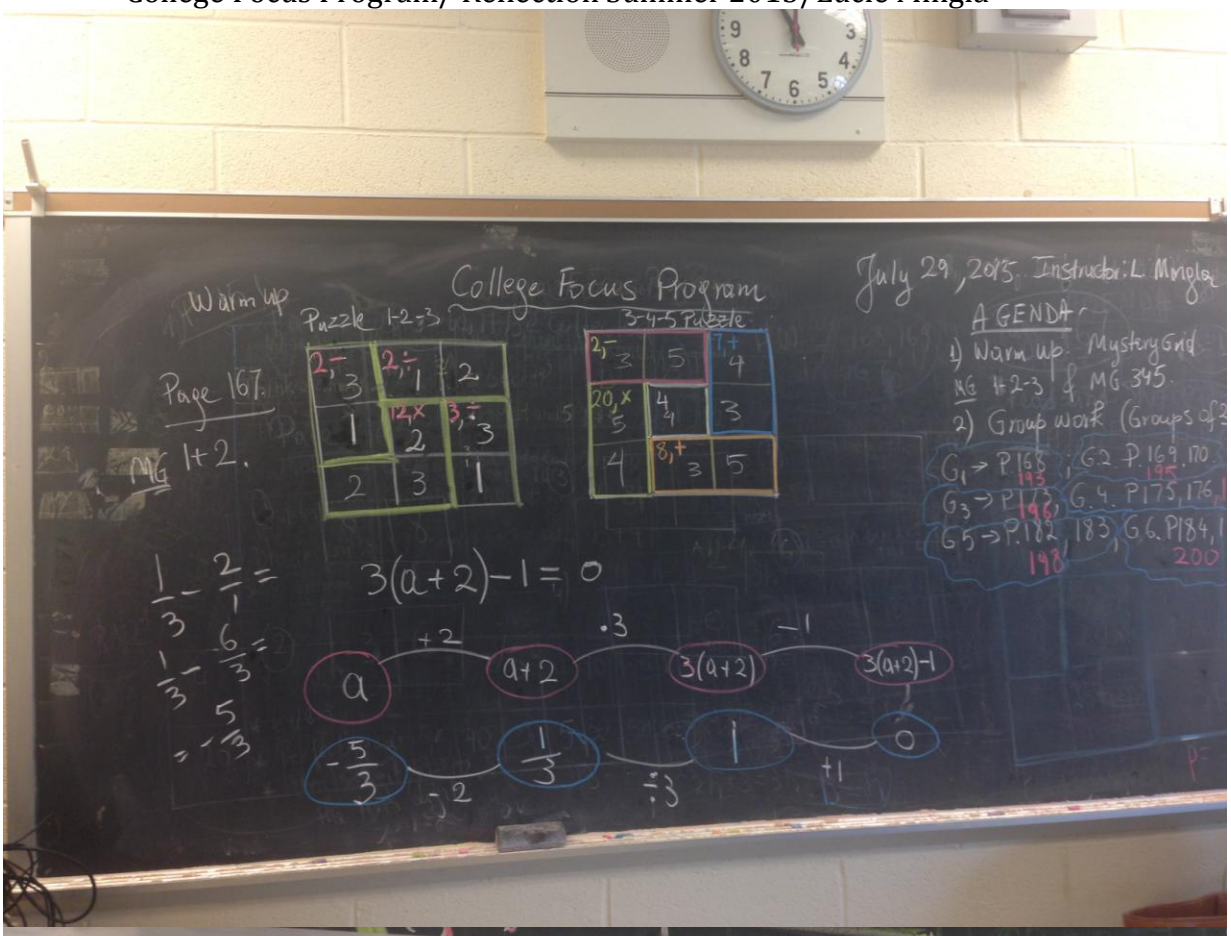

Area = πR^2
Circumference:
$C = 2\pi R$
or $C = \pi D$
D = 12 in
d = 6 in
Jasmina:
I get the same amount of pizza from three small pizzas as from One large pizza.
Do you think Jasmina is Correct? Why?
8 inches
4 inches
D = 8 in
d = 4 in
Jasmina says:
I get the same amount of Candy from two small rings as from One large ring.
Is Jasmina Correct? Explain Why?

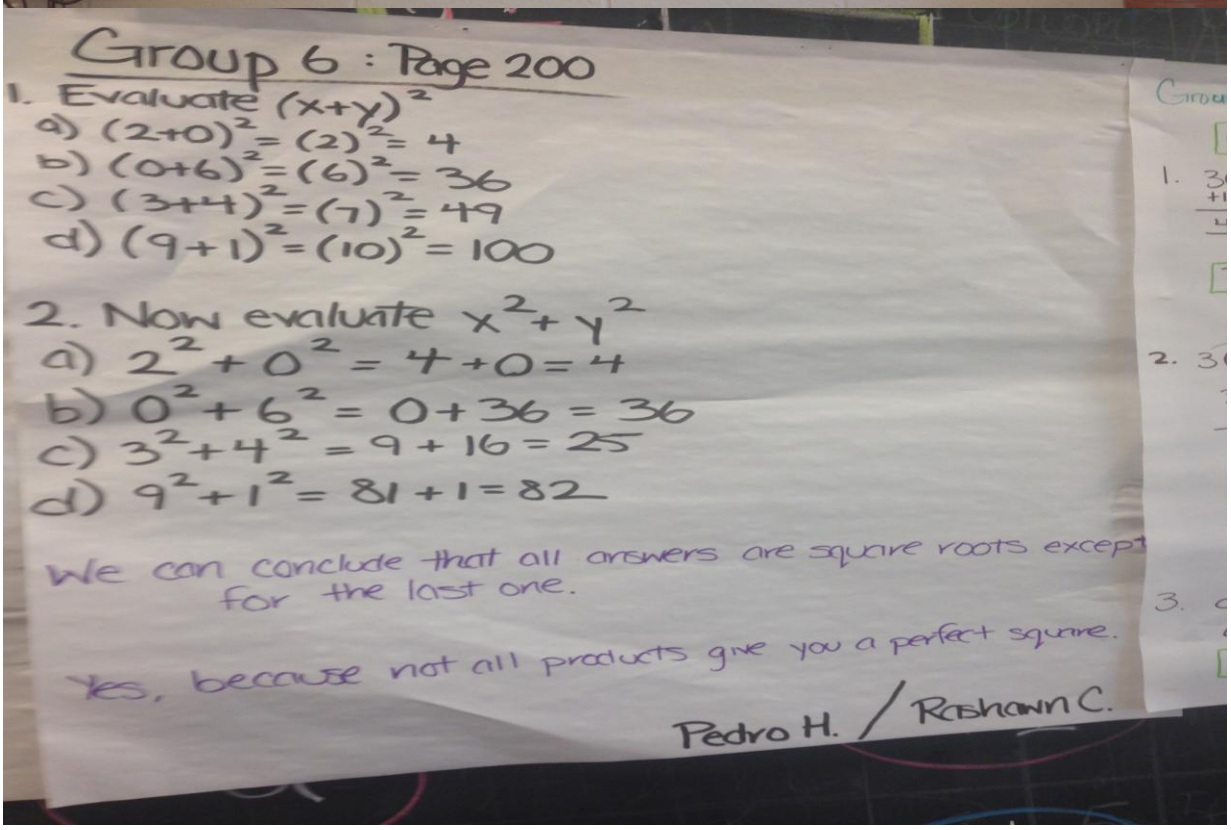

First Lunch
450
-2
448
448÷3=199.3
450÷62=7
7·62=434
16 more tables needed
Second Lunch
300
-2
298
298÷3=99.3
300÷62=4.8
or
4·8×62=248
47 seats are needed
1a. How many students can sit around 20 tables? 62 student sit at the table.
1b: How many students can sit around 100 tables?
students can sit around 100 tables
1c. How many students can sit around t tables?
Table Kids
1 5
2 8
3 10
4 13
5 16
First Lunch
15-0
How C. Gabriel! Aaron

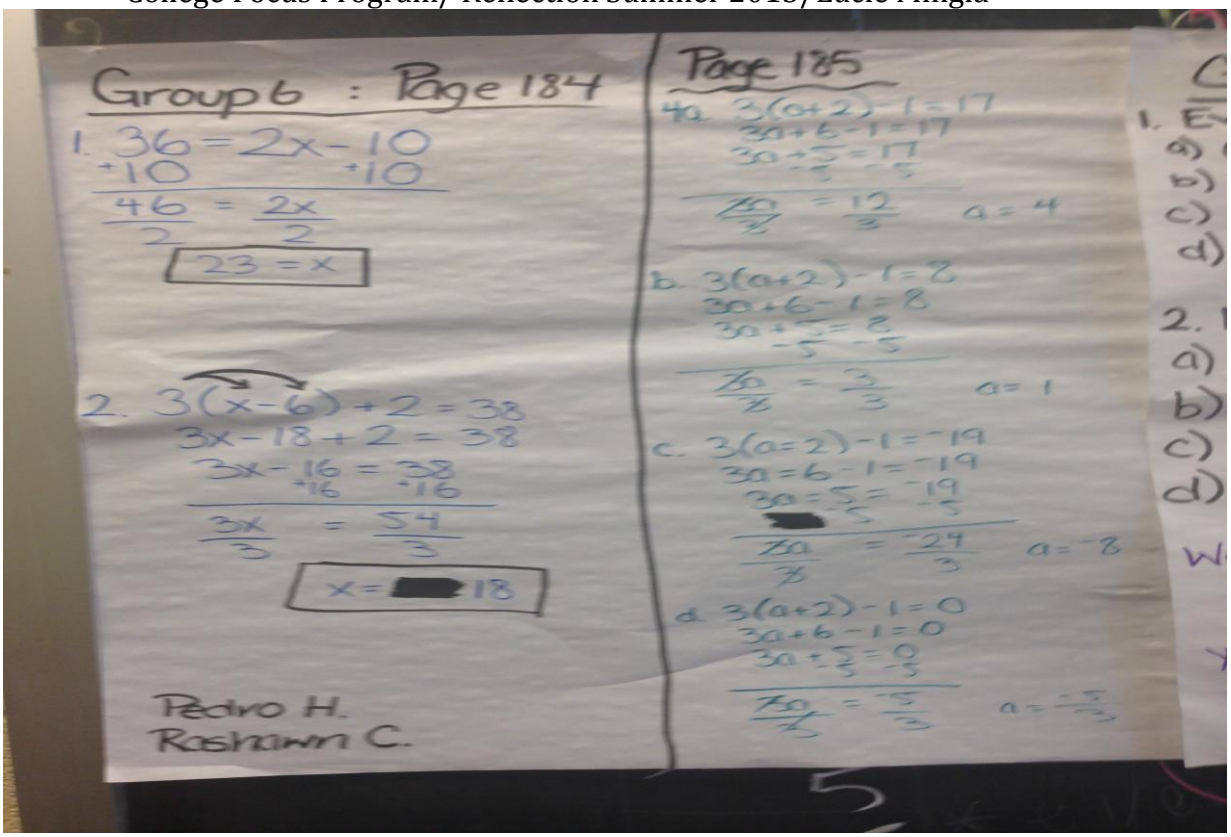

Tables
Students
1 5
2 8
3 11
4 14
5 17
6 20
7 23
8 26
9 29
10 32
20 64
50 160
100 320
Group 2
Activity 1
The # of students go up by 3 every time a table is added.

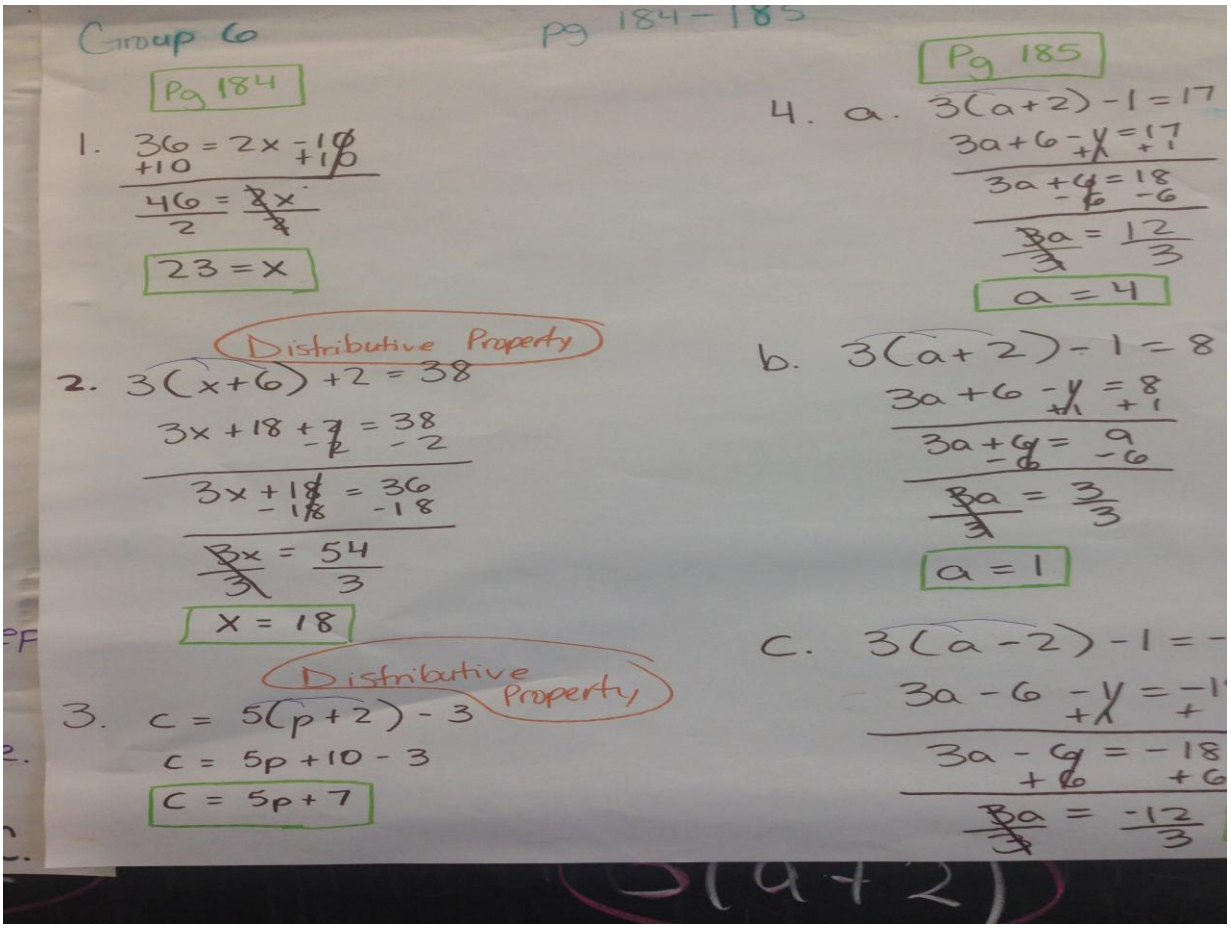

Tables
Students
1
2
3
4
5
6
7
8
9
10
20
50
100
5
8
11
14
17
20
23
26
29
32
64
160
320
2 tables = 8 students
3 tables = 11 students
The # of students go up by 3 every time a table is added.
Rishawn C., Miguel D., Luis T.

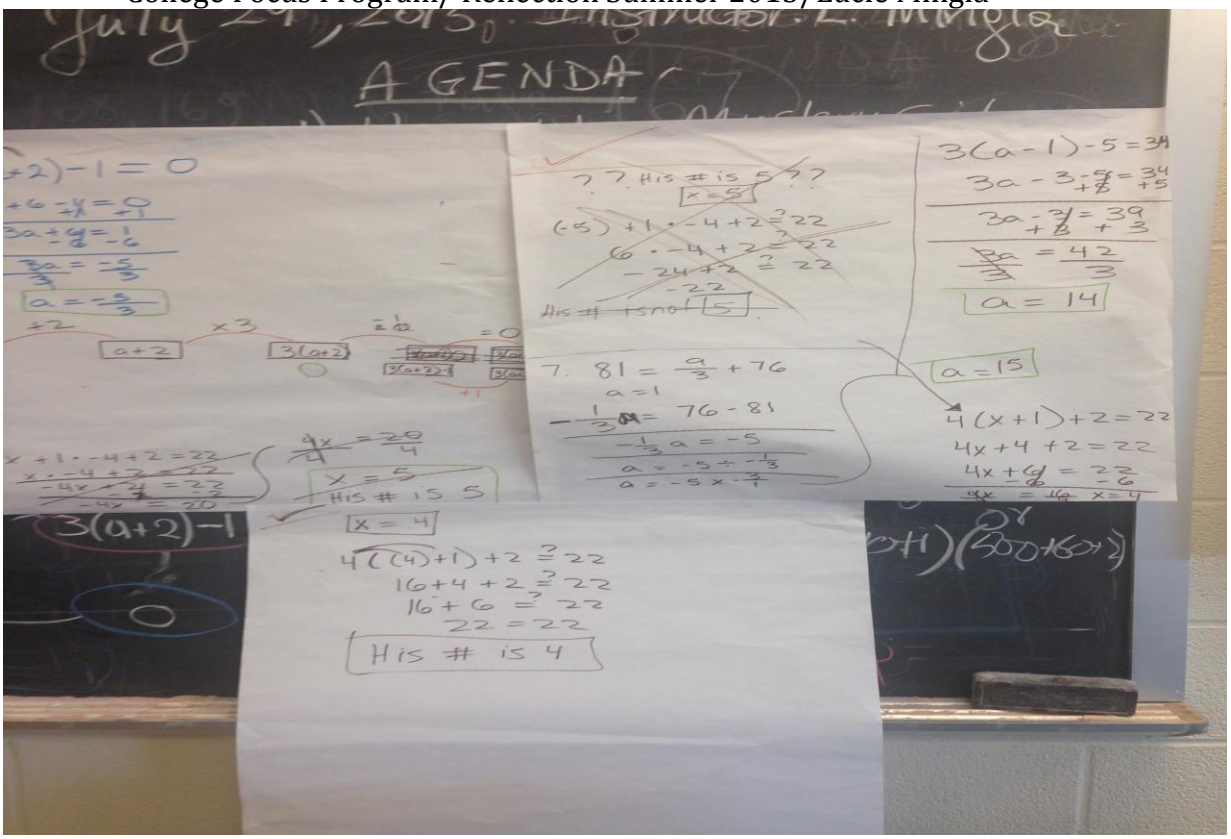

11 people on 3 tables
1a. t x 3 + 2 = # of people
number of tables
# of people who can fit on the connected tables.
20 x 3 + 2 = X
60 + 2 = X
62 = X
62 people can sit on 20 tables.
Nioka U.
Thayina C.
Sada M.
1b. 100 x 3 + 2 = 302 people can fit on 100 tables
1c. 3t + 2 = # of students
people that can fit on connected tables
Last two people on the side of the last end tables.
2. 450 students / 50 tables = 9 rows
3(50) + 2 =
62
450 - 434 = 16
16 - 2 / 3 = 14/3
5 tables are needed for the rest of the 16 students
Rishawn C., Miguel D., Luis T.

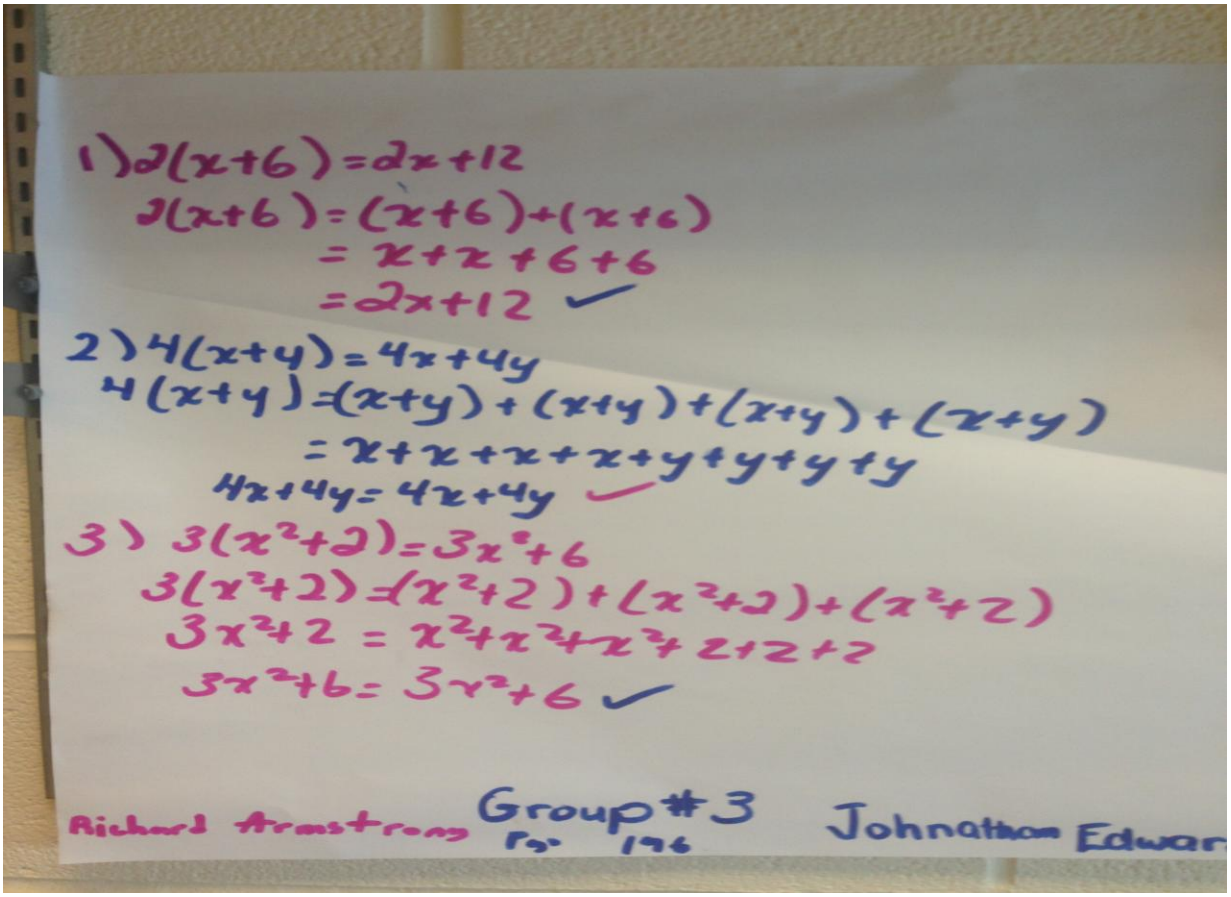

Warm up
Page 167
MG 1+2.
Puzzle 1-2-3
College Focus Program
3-4-5 Puzzle
July 29, 2015 Instructor: L. Mingla
AGENDA
1) Warm up Mystery Grid
MG 1+2-3 & MG 345
2) Group work (Groups of 3
G1 → P.168, 193 ; G2 P.169, 170, 195
G3 → P.173, 196, G.4. P175, 176,
G5 → P.182, 183, 198 G6. P184, 200
3(a+2)-1=0
+2
·3
-1
a
a+2
3(a+2)
3(a+2)-1
-2
÷3
+1

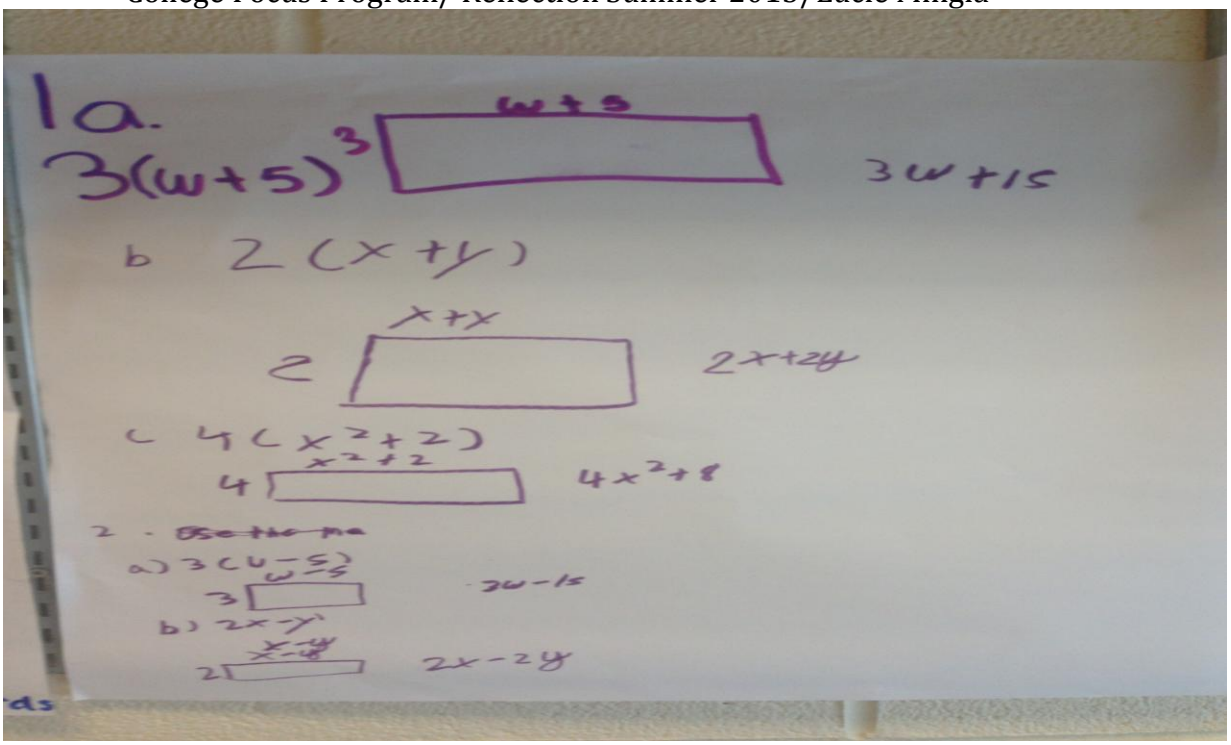

Group 6 : Page 200
1. Evaluate $(x+y)^2$
a) $(2+0)^2 = (2)^2 = 4$
b) $(0+6)^2 = (6)^2 = 36$
c) $(3+4)^2 = (7)^2 = 49$
d) $(9+1)^2 = (10)^2 = 100$
2. Now evaluate x^2+y^2
a) $2^2+0^2 = 4+0 = 4$
b) $0^2+6^2 = 0+36 = 36$
c) $3^2+4^2 = 9+16 = 25$
d) $9^2+1^2 = 81+1 = 82$
We can conclude that all answers are square roots except for the last one.
Yes, because not all products give you a perfect square.
Pedro H. / Roshawn C.

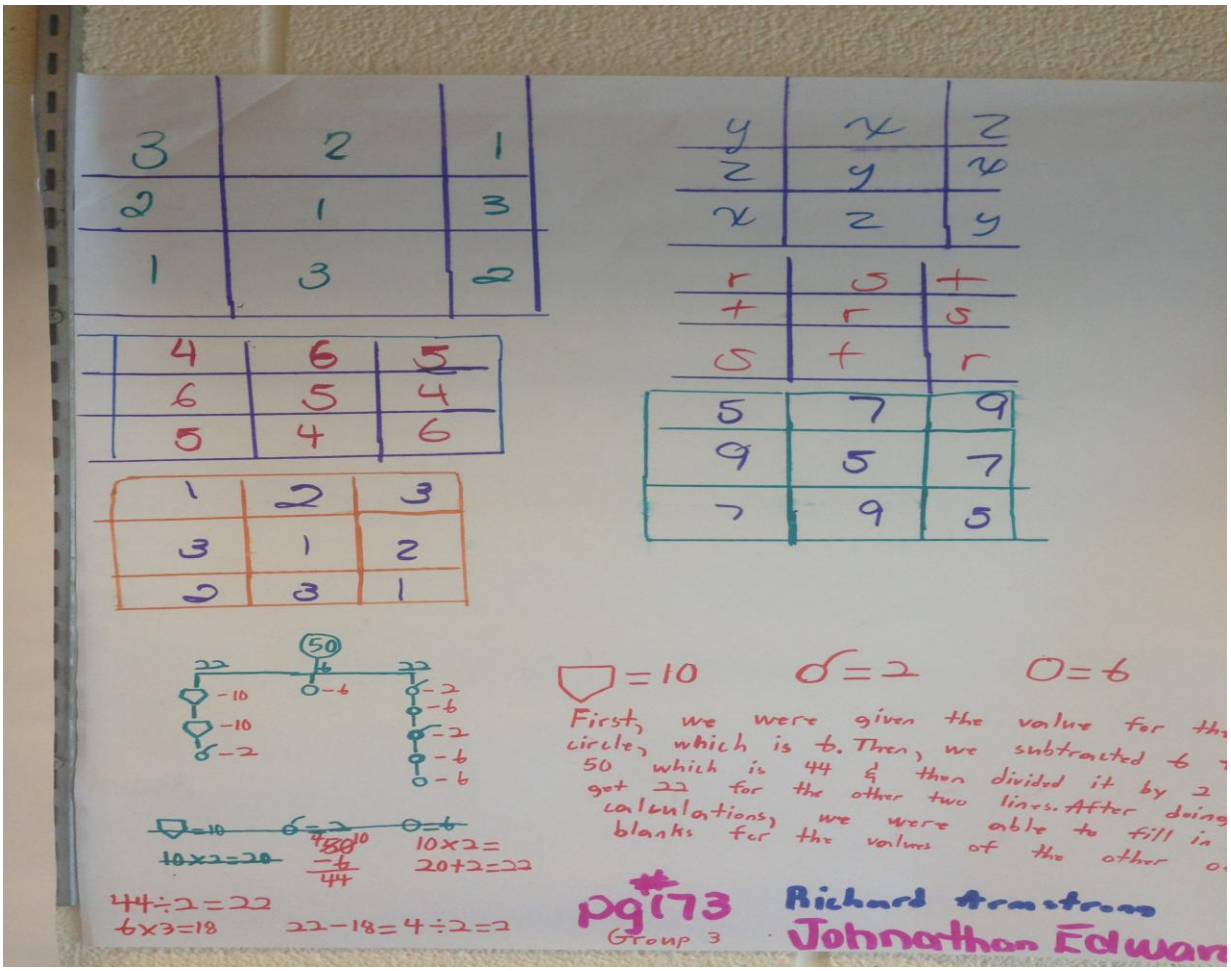

Group 6 : Page 184
1. 36 = 2x - 10
+10 +10
46/2 = 2x/2
23 = x
2. 3(x-6)+2=38
3x-18+2=38
3x-16=38
+16 +16
3x/3 = 54/3
x = 18
Pedro H.
Roshawn C.
Page 185
4a. 3(a+2)-1=17
3a+6-1=17
3a+5=17
-5 -5
12/3 = 12/3
a = 4
b. 3(a+2)-1=8
3a+6-1=8
3a+5=8
-5 -5
3/3 = 3/3
a = 1
c. 3(a+2)-1=-19
3a+6-1=-19
3a+5=-19
-5 -5
-24/3 = -24/3
a = -8
d. 3(a+2)-1=0
3a+6-1=0
3a+5=0
-5 -5
-5/3 = -5/3
a = -5/3

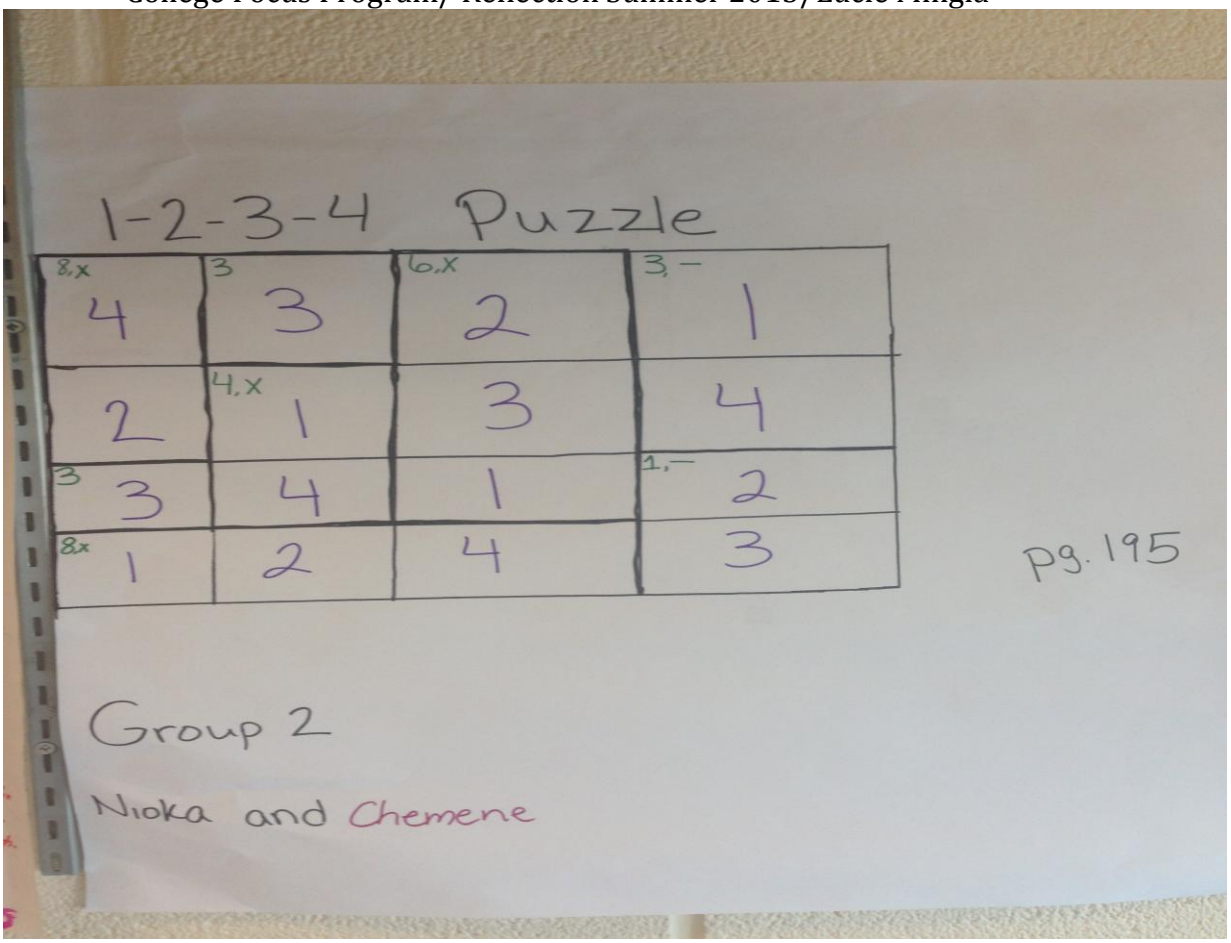

Group 6
pg 184-185
Pg 184
1. 36 = 2x - 10
+10 +10
46/2 = 2x/2
23 = x
Distributive Property
2. 3(x+6)+2=38
3x+18+2=38
-2 -2
3x+18=36
-18 -18
3x/3 = 54/3
x = 18
Distributive Property
3. c = 5(p+2)-3
c = 5p+10-3
c = 5p+7
Pg 185
4. a. 3(a+2)-1=17
3a+6-1=17
+1 +1
3a+6=18
-6 -6
3a/3 = 12/3
a = 4
b. 3(a+2)-1=8
3a+6-1=8
+1 +1
3a+6=9
-6 -6
3a/3 = 3/3
a = 1
c. 3(a-2)-1=
3a-6-1=
+1 +
3a-6=-18
+6 +6
3a/3 = -12/3

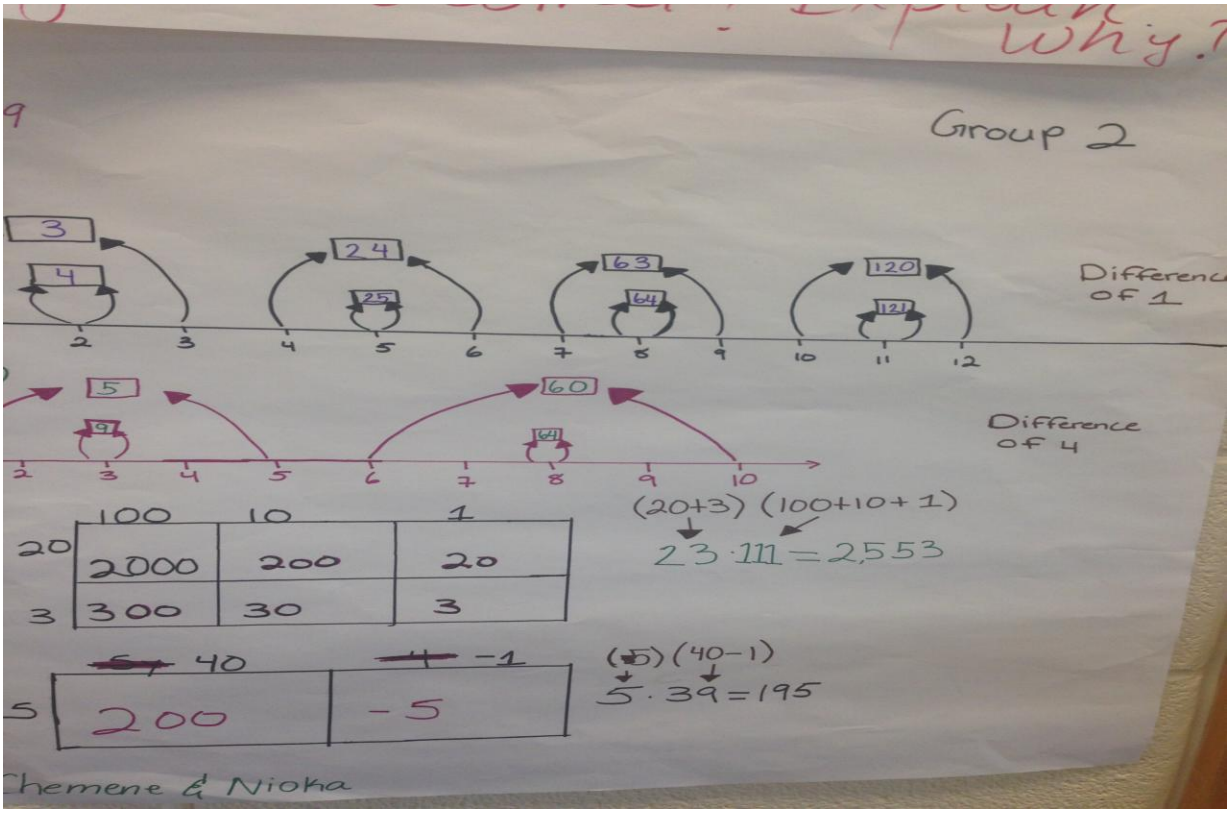

AGENDA
3(a-1)-5=34
3a-3=39
a=14
a=15
4(x+1)+2=22
4x+4+2=22
4x+6=22
x=4
His # is 4
3(a+2)-1
0

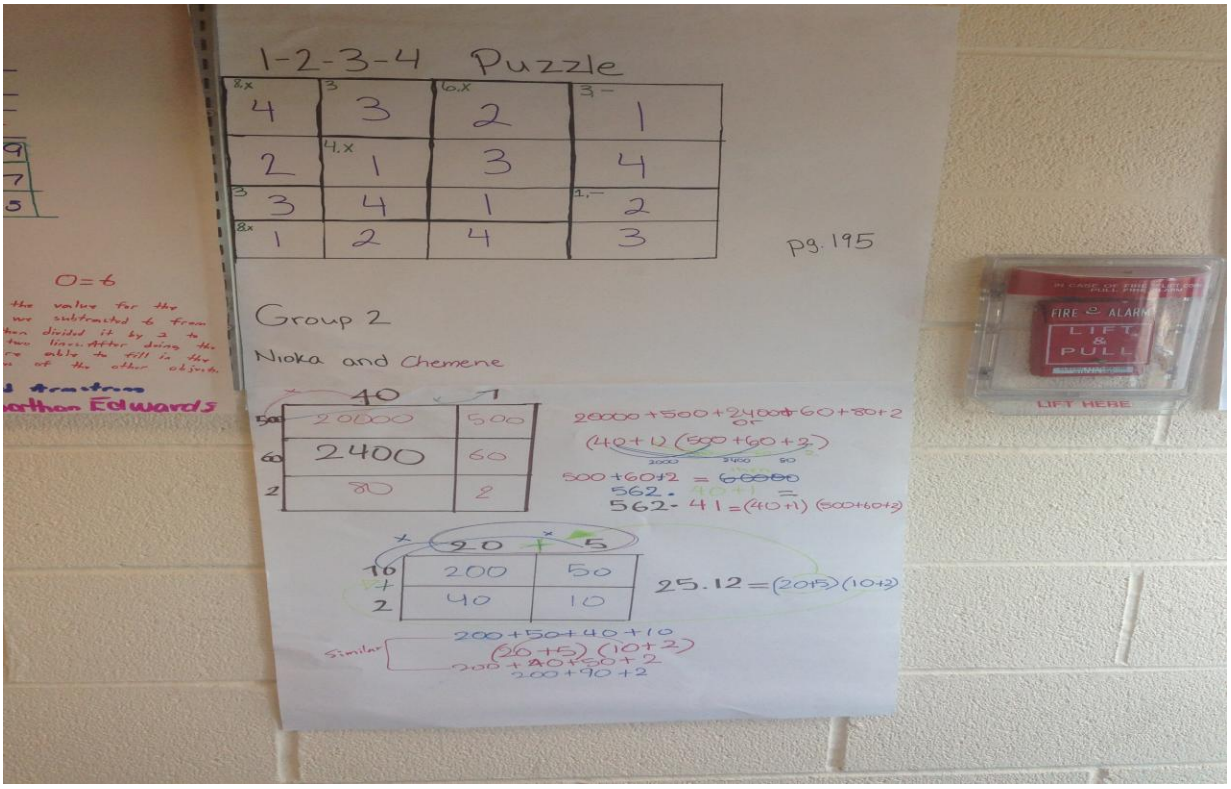

1) 2(x+6)=2x+12
2(x+6)=(x+6)+(x+6)
=x+x+6+6
=2x+12
2) 4(x+y)=4x+4y
4(x+y)=(x+y)+(x+y)+(x+y)+(x+y)
=x+x+x+x+y+y+y+y
4x+4y=4x+4y
3) 3(x²+2)=3x²+6
3(x²+2)=(x²+2)+(x²+2)+(x²+2)
3x²+2=x²+x²+x²+2+2+2
3x²+6=3x²+6
Group #3
Richard Armstrong
Johnathan Edwar

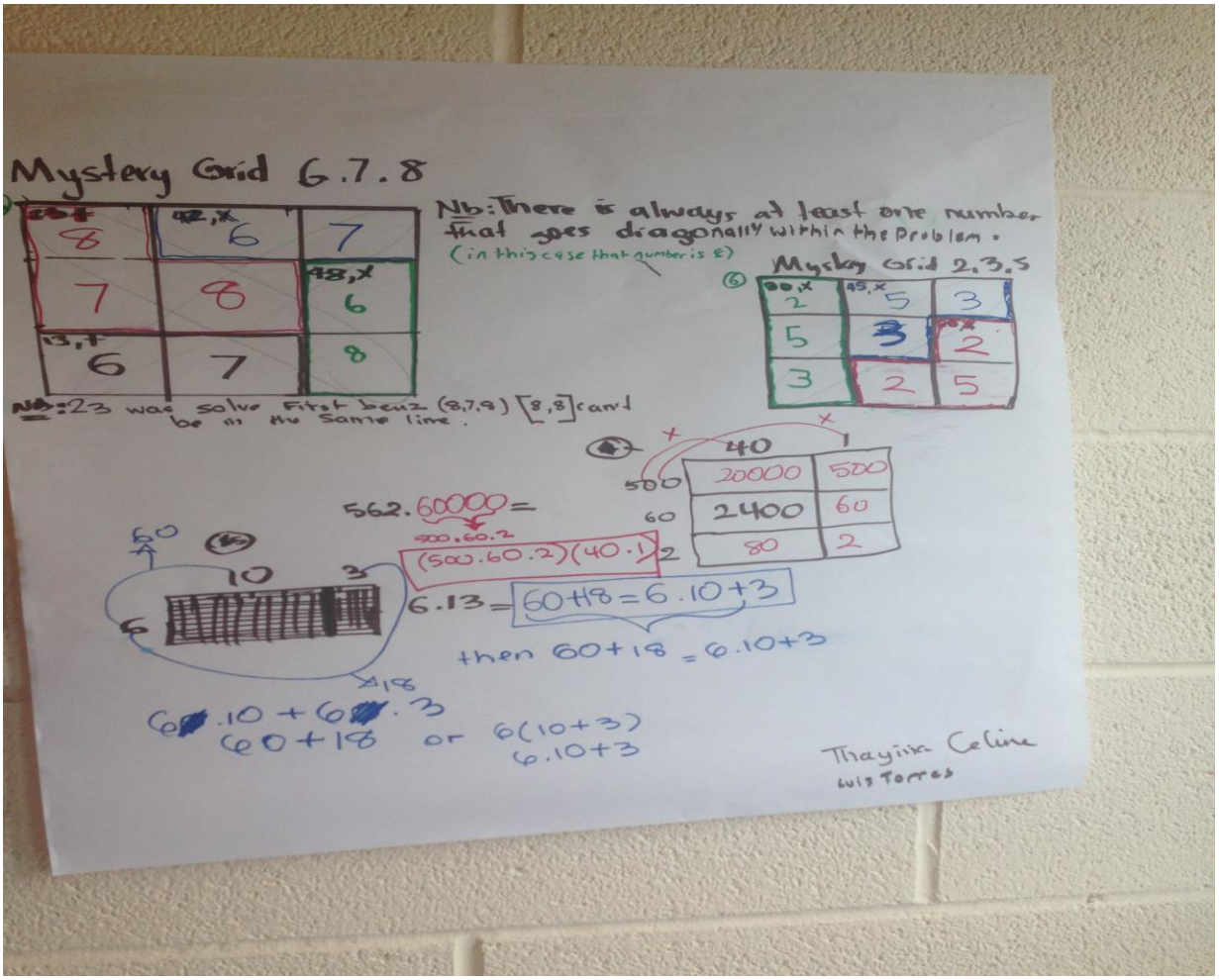

1a.
3(w+5)
w+5
3
3w+15
b 2(x+y)
x+x
2
2x+2y
c 4(x²+2)
x²+2
4
4x²+8
2. Use the ma
a) 3(w-5)
w-5
3
3w-15
b) 2x-2y
x-y
2
2x-2y


3 2 1
2 1 3
1 3 2
4 6 5
6 5 4
5 4 6
1 2 3
3 1 2
2 3 1
y x z
z y x
x z y
r s +
+ r s
s + r
5 7 9
9 5 7
7 9 5
50
22 -6 22
-10 -10 -2
-2 -6 -2 -6 -6
□=10 △=2 ○=6
10x2=20
10x2=
20+2=22
44÷2=22
6x3=18
22-18=4÷2=2
First, we were given the value for the circle, which is 6. Then, we subtracted 6 from 50 which is 44 & then divided it by 2 to get 22 for the other two lines. After doing calculations, we were able to fill in the blanks for the values of the other
pg173
Group 3
Richard Armstrong
Johnathan Edwar


1-2-3-4 Puzzle
8,x
4
3
3
6,x
2
3,-
1
2
4,x
1
3
4
3
3
4
1
1,-
2
8x
1
2
4
3
pg. 195
Group 2
Nioka and Chemene


Group 2
3
4
24
25
63
64
120
121
Difference of 1
5
9
60
64
Difference of 4
100
10
1
20
2000
200
20
3
300
30
3
40
-1
5
200
-5
(20+3) (100+10+1)
23 · 111 = 2,553
(5) (40-1)
5 · 39 = 195
Chemene & Nioka


1-2-3-4 Puzzle
pg. 195
Group 2
Nioka and Chemene
FIRE ALARM
LIFT & PULL
LIFT HERE


Mystery Grid 6.7.8
Nb: There is always at least one number that goes dragonally within the problem.
(in this case that number is 8)
Mystery Grid 2.3.5
Thayina Celine
Luis Torres

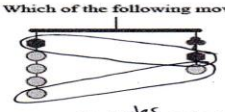
54/76 71%

Math College Focus Program **Test # 2**

Name: Jada Macharie 7/29/15

1)

Which of the following moves would keep the mobile balanced? Circle all that apply.



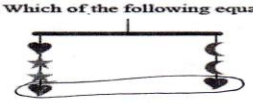
(i) Add 3 circles to the right side. ✓
(ii) Add 2 clovers (🍀) to both sides. ✓
(iii) Move the shapes so all 5 circles are on the left side and both hexagons are on the right side.
(iv) Subtract a circle from both sides.
(v) Cross out both hexagons.
(vi) Subtract 3 circles from the left side.

2

3 circles = clouds

2)

Which of the following equations also must be balanced? Circle all that apply.

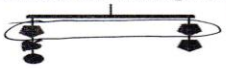


(i) $h + s + s + h = m + m + h$ ✓
(ii) $2s + h = 2m$ ✓
(iii) $6h + 6s = 6m + 3h$
(iv) $2m + h = h + 2s + h$ ✓
(v) $3s + 2h = 2m + h + s$
(vi) $3h = 2m + 2s$

3

3)

(B) Which of the following moves would keep the mobile balanced? Circle all that apply.



(A) Add a pentagon to both sides. ✓
(B) Add 5 leaves to both sides.
(C) Move all the pentagons to the right side.
(D) Switch the leaf and circle. ✓
(E) Add a circle to the right side.
(F) Remove one pentagon from both sides. ✓

1

* **4)**

	n	3p
2n		
7p		
−6		

3

$(n - 3p)(2n + 7p - 6) =$

$2n^2 + 7pn - 6n - 6pn - 21p^2 + 18p$

$2n^2 - 6n + pn - 21p^2 + 18p$

$9 + 4c = 10 + c + 11$

$9 + 4c = 10 + 11c$

$-9 \quad -9$

$4c = 1 + 11c$

$-11c \quad -11c$

$\frac{-7c}{-7} = \frac{1}{-7}$

* **5)**

① Find c... by using this mobile.

$9 + 4c = 10 + c + 11$

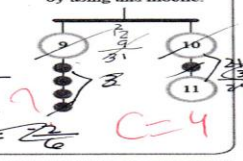
$9 + 4c = 10 + c + 11$

$-4c \quad -4c$

$9 = 6c + 11$

$-11 \quad -11$

$\frac{-2}{2} = \frac{6c}{6}$ $c = -\frac{2}{6}$



$C = 4$

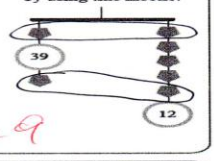
② Find p... by using this mobile.

$p + 39 + p = 5p + 12$

$p + 39 + p = 5p + 12$

39

$p = 13$



$p = 9$

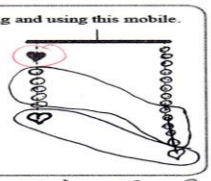
$0 = 3p$

$\frac{39}{3} = \frac{3p}{3}$

$3c = 10$

* ③ Find h... by drawing and using this mobile.

$h + 5 + 2h = 13 + h$



$h = 4$

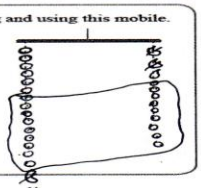
2

8 circles

④ Find m... by drawing and using this mobile.

$15 + 2m = 2m + 9 + m$

$m = 6$ ✓



4

6)

$8 + 5 + 2(8) = 13 + 8$

$29 \quad 13 + 16 =$

$15 + 2(6) = 2(6) + 9 + 6$

$23 = 12 + 15$

$23 = 23$

Fill in the blanks in this Think-of-a-Number Trick.

Instructions	Pictures	Result	Jacob	Mali	Kayla
Think of a number.	8 ✓	b ✓	4	7	3
Add 5.	■●●● ✓	b + 5	9	12	8
Multiply by 2.	8 8 ●●●● ✓	2(b + 5) ✓	18	34	16
Subtract 4.	■■●●●	2(b + 5) − 4	14 ✓	74 ✗	12

12

7)

MysteryGrid 1, 2, 3, 4

8, ×		6, ×	4, ×
4, +			
3, −	5, +	7, +	
		3, +	

(5)

8)

This mobile balances.

This mobile balances, too.

How many hearts will make this balance?

How many hearts will make *this* balance?

If ♥ = 8, then what are the values of ♥ and ◆?

♥ = 4
◆ = 6

(8)

9)

Which of the following would work as a first step to solving this equation? Circle all that apply. Find *p*, too.

(i) Subtract 7 from both sides.
(ii) Add 19 + 7 + 18 = 44.
(iii) Subtract 18 from both sides.
(iv) Subtract a pentagon from both sides.

$p + 19 + 7 = 3p + 18$
$19p + 7 = 3p + 18$
$-3p \quad -3p$
$16p + 7 = 18$
$-7 \quad -7$

$\frac{16p}{16} = \frac{11}{16}$

$p = 4$

(3)

10)

Who Am I?

- I'm not an even number.
- Two of my digits are even.
- My units digit is half my tens digit.
- All three of my digits are different.
- My hundreds digit is twice the sum of my units digit and my tens digit.

h	t	u
6	2	1

621

(3)

48
24 24
12 12

◆ = ? 6
★ = ? 3
● = ? 4

$4★ = 3●$
$4◆ = 4★ + 3●$
$48 = 4◆ + 4★ + 3●$

(3)

11)

Mobile Puzzles

10 20 10
10 20 10

♥ = 2 ● = 4 ☾ = 6

(3)

y + 15
y
y + 15
46

y = 16

(2)

$y + 19 = 46$
$-19 \quad -19$
$y = 27$

$2y + 30 = y + y$
$-30 \quad -30$
$2y = y + 16$
$-y \quad -y$
$y = 16$

Great Job!

Alg. 1.2 Exit Ticket

Name: Thajina Celine

1(a) Check (✓) every expression that represents the **area** shaded in the following diagram:

3+5×2 ≠16

	3	5
2	2.3	5.2

A= 2.3 + 5.2

A= 2(3+5) = 2.3 + 5.2

i	ii	iii	iv	v
2×3+5	2×3+2×5 ✓	3+5×2 ✓	3+5+3+5	2×(3+5) ✓

Explain your choices:

(ii) 2×3+ 2×5 = 2.3 + 5.2 (2.3 | 2.5) let's say that [2 × 3] is one figure and you multiply the length with the width (2.3 then you do the same for [2 × 5] which is also (2.5), then you just add them together A= 2.3 + 2.5

(v) 2.(3+5) when you do the distributive properties function, it will equal to 2.3 + 2.5 which is exactly what the figure represent.

(b) Check (✓) every expression that represents the **area** shaded in the following diagram:

	5	3
5	5.5 = 5²	5.3 = 15
3	3.5	3.3 = 9

(5+3)·(5+3) = 5² + 15 + 15 + 9 = 5² + 30 + 9

i	ii	iii	iv	v
5×5+2×5×3+3×3 ✓	5^2+3^2	5+3×5+3	$(5+3)^2$ ✓	(5+3)×(5+3) ✓

Explain your choices:

(i) 5×5+2×5×3+3×3

= 5.5 + 2.5.3 + 3.3

= 5² + 10.3 + 9

= 5² + 30 + 9

(5+3)²

= (5+3)(5+3)

= 5² + 15 + 15 + 9

= 5² + 30 + 9

(v) is just the distribution of properties of (iv).

when you do the calculation for answer (i), you multiply 5 by 5 which is 5² then you multiply 2 by 5 then by 3 and you'll get 30 then you multiply 3 by 3 and you get 9. Then you put them together and you'll get 5² + 30 + 9.

Richard Armstrong

Great Job Richard!

Solve the equations below. You may need to factor first. Use an area model, table, or anything else that will help you.

5. If $x^2 + 8x - 9 = 0$, x = -9 or 1

$x^2+8x-9=0$

$(x+9)(x-1)=0$

$x^2-x+9x-9=0$

x^2+8x-9

$x+9=0$	$x-1=0$
$-9\ -9$	$+1\ +1$
$x=-9$	$x=1$

6. If $x^2 + 5x - 36 = 0$, x = -9 or 4

$x^2+5x-36=0$

$(x+9)(x-4)=0$

$x+9=0$	$x-4=0$
$-9\ -9$	$+4\ +4$
$x=-9$	$x=4$

1, 36
2, 18
3, 12
4, 9
6, 6

7. If $x^2 + 17x + 30 = 0$, x = -15 or -2

$x^2+17x+30=0$

$(x+15)(x+2)=0$

$x+15=0$	$x+2=0$
$-15\ -15$	$-2\ -2$
$x=-15$	$x=-2$

8. If $x^2 + 7x + 6 = 0$, x = -6 or -1

$x^2+7x+6=0$

$(x+1)(x+6)=0$

$x+1=0$	$x+6=0$
$-1\ -1$	$-6\ -6$
$x=-1$	$x=-6$

Use factoring to solve the equations below. To use the zero product property, you may need to rewrite the equation. Use an area model, table, or anything else that will help you.

9. $x^2 + 5x + 11 = 5$

$x^2+5x+11=5$

$-5\ -5$

$x^2+5x+6=0$

$(x+3)(x+2)=0$

$x+3=0$	$x+2=0$
$-3\ -3$	$-2\ -2$
$x=-3$	$x=-2$

$x=-3$ or -2

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

$9-15=-6+11=5=5$

$-2^2=4+5(-2)=4-10=-6+11=5$

10. $x^2 + 9x + 9 = -9$

$x^2+9x+9=-9$

$+9\ +9$

$x^2+9x+18=0$

$(x+6)(x+3)=0$

$x+6=0$	$x+3=0$
$-6\ -6$	$-3\ -3$
$x=-6$	$x=-3$

$x=-6$ or -3

$(-6)^2+9(-6)+9$

$36-54=-18+9=-9$

1029