DAILY LESSON PLAN

Week of:	Date	Grade	Subject
March 12th	3/15		Alg II MATH

General Topic: Solving Systems of Linear Equations & Inequalities

Today's Topic: Solving Systems of Equations Graphically

Expected Student Learning Outcomes

What will students know and be able to do as a result of today's lesson?

To solve linear systems by graphing.

Standards Addressed:

AII.10

Which learning standard from the MA Frameworks or WPS curriculum does today's lesson address?

1. Number Sense
2. Patterns, Relations & Functions
3. Geometry & Measurement
4. Statistics & Probability

School Improvement Plan

Which (if any) literacy strategy does today's lesson address?

LEARN TO READ/READ TO LEARN

Pre-Reading	Guided Reading	Post Reading
____Preview Text	____Make connections	____Low Stakes Writing
____Ask Questions	____Visualize	____Projects
____Activate Prior Knowledge	____Think aloud strategy	____Presentations

LEARN TO WRITE/WRITE TO LEARN

____"I wonder" log entries	____Letters	____Metacognitive Logs
____ Exit slips	____2 Column notes	

✓ Solve problems using linear equations/inequalities

✓ Apply algebraic and graphical methods to solutions

Outline of Lesson Activities: (to be posted on classroom agenda)

Discuss HW - pg. 158 #1-28

Lecture/Notes: - How to solve linear systems of Equations graphically?

- what is a consistent system of Equations?
- what are dependent Equations?
- what is an inconsistent system of Equations?

Do "Try It" pg. 163 & #1 Excercises .Core

Group work pg. 166 # 29-34 → Discuss

HW: pg. 164 # 2-13

Assessment:

How will you assess students' understanding of today's lesson?

Test – Quiz – Verbal Questioning – Group Work – Homework (written or reading) –

Project Presentation – Portfolios –

Other :

Solving Systems of Equations Graphically
Ch. 3-1 Part A

Check HW

Discuss HW pg.158 # 1-10 Done by 12:30

How to solve Linear Equations Graphically:

↗ solution to the set is all the ordered pairs that make that equation true.

- A system of linear equations is a set of two or more linear equations with same variables.
- Graphing these equations is the easiest when put in ~~point slope~~ slope-intercept - solve for y. form.

What is a consistent system of equations? (Example in book)
When the graphs intersect at exactly one point, so there is one solution to the system.

What are dependent equations? (Example in book)
When the graphs coincide; and there is an infinite number of solutions.

What is an inconsistent system of equations? (Example in book)
When the graphs are parallel and there are no points in common.

2 min Questions

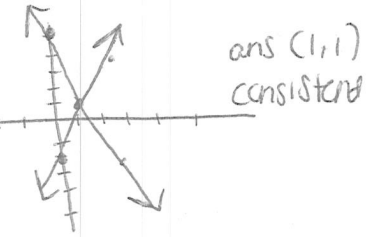
use Table (2 pts)

Ex. y= 3x-2 slope: 3 y-intercept = -2

x	y
1	1
0	-2

y= -4x + 5 slope: -4 y-intercep=5

x	y
~~0~~	~~5~~
1	1

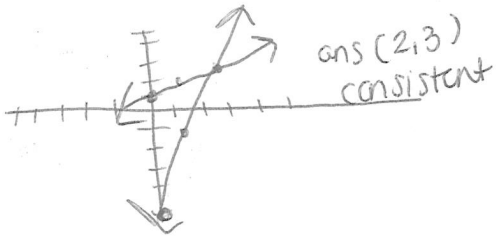


What is the slope and y intercept of each equation?
Are they consistent, dependent, or inconsistent?

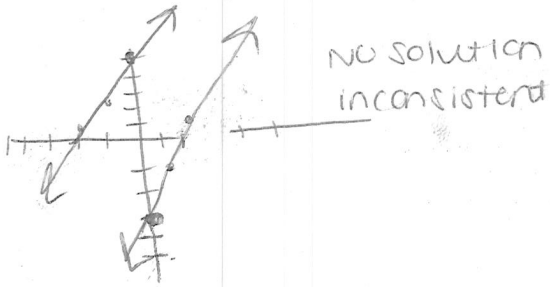
Try It pg. 163

a. 4x-y=5
-3x+3y=3

y = 4x - 5
y = x + 1



b. y=2x+5
y=2x-3



Pg. 163 Exercises #1

$3x+y=11 \rightarrow y=-3x+11$

$6x-3y=9 \rightarrow y=-3+2x$

What is the slope and y intercept of each equation? Then graph.
Are they consistent, dependent, or inconsistent?

To solve on a calculator graphically: → after group work

- Put both equations into slope intercept form and plug them into calculator.
- 2nd. trace, intersect (5) enter
-
-

GROUP WORK: Pg. 166 # 29-34 (Assign new groups)

DISCUSS

HW: Pg. 164 # 2-13

DAILY LESSON PLAN

Week of:	Date	Grade	Subject
March 19th.	3/19/07		Alg II MATH

General Topic: Systems of Linear Equations

Today's Topic: Solving Systems of Equations symbolically

Expected Student Learning Outcomes

What will students know and be able to do as a result of today's lesson?

To solve systems of Equations using the substitution method and Linear combination method.

Standards Addressed:

AII.P.10

Which learning standard from the MA Frameworks or WPS curriculum does today's lesson address?

1. Number Sense
2. Patterns, Relations & Functions (circled)
3. Geometry & Measurement
4. Statistics & Probability

School Improvement Plan

Which (if any) literacy strategy does today's lesson address?

LEARN TO READ/READ TO LEARN

Pre-Reading	Guided Reading	Post Reading
____Preview Text	____Make connections	____Low Stakes Writing
____Ask Questions	____Visualize	____Projects
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LEARN TO WRITE/WRITE TO LEARN

____"I wonder" log entries	____Letters	____Metacognitive Logs
____ Exit slips	____2 Column notes	

✓ Solve problems using linear equations/inequalities

✓ Apply algebraic and graphical methods to solutions

Outline of Lesson Activities: (to be posted on classroom agenda)

- Discuss HW pg. 164 #2-13
- Examples of solving systems of Equations using graphing calculator.
- Substitution Method for solving systems of Eq.
- Linear Combination Method.
- "Try It" pg. 172 a-c
- Do pg. 173 # 1,2 & pg. 174 #11
- Groupwork Page 174 # 6-10 & 12
  ✓ Discuss

HW pg. 177 # 31-39 odd

Assessment:

How will you assess students' understanding of today's lesson?

Test – Quiz – Verbal Questioning – Group Work – Homework (written or reading) –
Project Presentation – Portfolios –
Other :

March 19, 2007

Solving Systems of Equations Symbolically
Ch. 3-1 Part B

Discuss HW: Pg. 164 #2-13

Do examples of solving linear equations graphically using a graphing calculator
HW Problems or Pg. 166 # 43&44

How to Solve Systems of Equations Symbolically:

1. **Substitution:**
   - Get a variable from one equation on a side by itself.
   - Substitute the equation for the specified variable in the 2nd equation
   - Solve for specified variable
   - Plug in to either equation and solve for 2nd variable

Ex. $6x + y = -2$ ~ $y = -6x - 2$ → substitute
$4x - 3y = 17$ ~

$4x - 3(-6x-2) = 17$
$4x + 18x + 6 = 17$
$-6 \quad -6$
$\frac{22x}{22} = \frac{11}{22}$
$x = \frac{1}{2}$ → substitute

$y = -6(\frac{1}{2}) - 2$
$y = -3 - 2$
$y = -5$

Solution = $(\frac{1}{2}, -5)$

$x = -2y - 3$
$4x - 5y = -3$
$4(2y-3) - 5y = -3$
$8y - 12 - 5y = -3$
$3y - 12 = -3$
$+12 \quad +12$
$3y = 9$
$y = 3$
$x = 3$

2. **Linear Combination:** Equations in the system are add to each other to eliminate all but one of the variables.
   - Put each equation in Ax+By=C format → Line up variables
   - Multiply a specified equation by a number that will allow one of the variables to cancel each other out
   - Add each column
   - Solve for the remaining variable
   - Plug in to either equation and solve for 2nd variable

Ex.
(4) $3(5x - 3y = 14) = 15x - 9y = 42$
$-5(3x - 2y = 6) = -15x + 10y = -30$
$y = 12$ → substitute into easier equation

$3x - 2(12) = 6$
$3x - 24 = 6$
$+24 \quad +24$
$\frac{3x}{3} = \frac{30}{3} \quad x = 10$

Solution = $(10, 12)$

(1) $x + y = 7$
$x - y = 3$
$\frac{2x}{2} = \frac{10}{2} \quad x = 10$

$10 + y = 7$
-10
$y = -3$
$(10, -3)$

(2) $-1(x + y) = 12$
$2x + y = 20$
$-x - y = -12$
$x = 8$

$8 + y = 12$
$-8 \quad -8$
$y = 4$
$(8, 4)$

Note:

- Not all systems of equations will have a unique solution.
- The method you choose depends on the equations of the system.
- One method will make the process of eliminating a variable easier.

Do Try It Pg. 172 B&C

a. $3x+2y=5$
$4x+4y=10$

$\frac{4y}{4} = \frac{-4x}{4} + \frac{10}{4}$

$y = -x + \frac{5}{2}$ → substitute

$3x+2\left(-x+\frac{5}{2}\right)=5$
$3x-2x+5=5$
$x+5=5$
$-5\ \ -5$
$x=0$ → substitute

$y=(-1)(0)+\frac{5}{2}$
$y=\frac{5}{2}$ $\left(0,\frac{5}{2}\right)$ consistent

b. $4x-2y=3$ ~ $4x-2(x-7)=3$
$y=x-7$ ~ $4x-2x+14=3$
$2x+14=3$
$-14\ \ -14$
$\frac{2x}{2}=\frac{-11}{2}$ $x=-11/2$

$y=\frac{-11}{2}-7$ $-\frac{11}{2}-\frac{14}{2}$
$y=-25/2$
$\left(-\frac{11}{2}, \frac{25}{2}\right)$
consistent

Do Pg. 173 # 1&2

1. $x-3y=3$ $x=3y+3$
$2x+4y=-14$

$(3y+3)+4y=-14$
$6y+6+4y=-14$
$10y+6=-14$
$-6\ \ -6$
$\frac{10y}{10}=\frac{-20}{10}$ $y=-2$

$x=3(-2)+3$
$x=-6+3$
$x=-3$
$(-3,-2)$

c. $-2(3x+y=1)$ $-6x-2y=-2$
$6x+2y=5$ $6x+2y=5$
$0=3$
No solution
inconsistent

2. $-2(3x+2y=9)$ $-6x-4y=-18$
$-2x+4y=10$ $-2x+4y=10$

$-8x=-8$ $x=1$
$\frac{-8}{-8}\ \ \frac{-8}{-8}$

$3(1)+2y=9$
$-3\ \ \ -3+2y=9\ \ -3$
$\frac{2y}{2}=\frac{6}{2}$ $y=3$ $(1,3)$

Do Pg. 174 # 11

$L=4+W$
$16=2L+2W$
$16=2(4+W)+2W$
$16=8+2W+2W$
$16=8+4W$
$-8\ \ -8$
$\frac{8}{4}=\frac{4W}{4}$ $W=2$

$L=4+2$
$L=6$

Group Work: 174 #6-10 & 12

Discuss 176# 30-34

HW: Pg. ~~177 # 31-39~~ odd

November 19, 2007
Classwork
Pg. 174 # 6-10 & 12

6. $y = 2x+1$
$3x+2y=27$
$3x+2(2x+1)=27$
$3x+4x+2=27$
$\frac{7x}{7}=\frac{25}{7}$
$x=25/7$

$y=2(\frac{25}{7})+1$
$y=\frac{50}{7}+\frac{7}{7}=\frac{57}{7}$
$(25/7, 57/7)$

$-2(y=2x+1)$
$2y=-3x+27$ ✓
$-2y=-4x-2$
$0=-7x+25$
$\frac{7x}{7}=\frac{25}{7}$
$x=25/7$
$y=2(\frac{25}{7})+1$
$y=57/7$

7. $3x+4y=10$
$2(5x-2y=8)$
$10x-4y=16$
$\frac{13x}{13}=\frac{26}{13}$
$x=2$
$(2,1)$

$3(2)+4y=10$
$6+4y=10$
$-6 \quad -6$
$\frac{4y}{4}=\frac{4}{4}$
$y=1$

$3x+4y=10 \sim \frac{4y}{4}=\frac{-3x}{4}+\frac{10}{4} \sim y=-3/4x+5/2$
$5x-2y=8 \sim$
$5x-2(-3/4x+\frac{5}{2})=8$
$5x+\frac{3}{2}x-5=8$
$+5 \quad +5$ ✓
$\frac{10}{2}\ 5x+\frac{3}{2}x=13$
$\frac{2}{13}\cdot\frac{13}{2}x=13\cdot\frac{2}{13}$
$x=2$
$3(2)+4y=10$
$6+4y=10$
$\frac{4y}{4}=\frac{4}{4}\quad y=1$

8. $x+y=4$
$y=2x+1$
$x+2x+1=4$
$3x+1=4$
$-1 \quad -1$
$\frac{3x}{3}=\frac{3}{3}\quad x=1$
$1+y=4$
$-1 \quad -1$
$y=3$
$(1,3)$

3-1A Practice

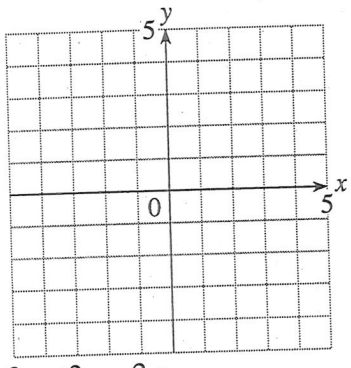
Name _____

Date _____

Solve each system of equations by graphing if possible.

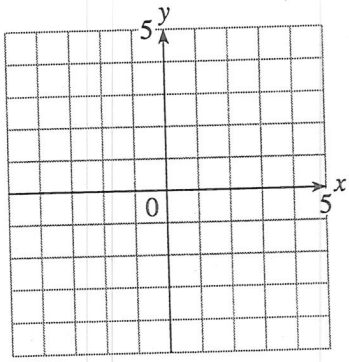
1. $y = 2x + 1$

   $y = -x + 4$ _____



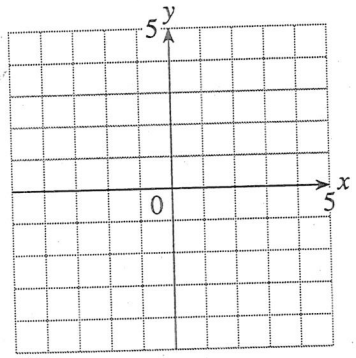
2. $y = \frac{1}{2}x + 1$

   $y = \frac{3}{2}x - 3$ _____



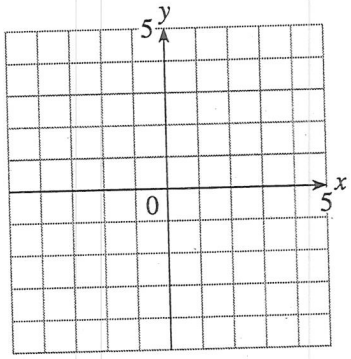
3. $2x + 3y = 3$

   $x + y = 0$ _____



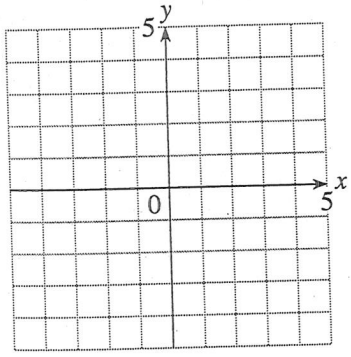
4. $y = 4x$

   $2x - y = -1$ _____



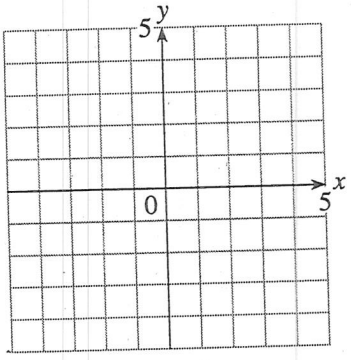
5. $x + 2y = 2$

   $3x + y = -4$ _____



6. $y = 3x - 4$

   $y = -2x + 1$ _____



7. George needs to send a package to Maryland. Federal Package charges a base fee of \$8 plus an additional \$2 per pound. United Shipping charges a base fee of \$13 plus an additional \$1 per pound.

   a. For what weight of package would the charges for the two companies be equal? _____

   b. George's package weighs 7 pounds. Which service will be cheaper for him to use? _____