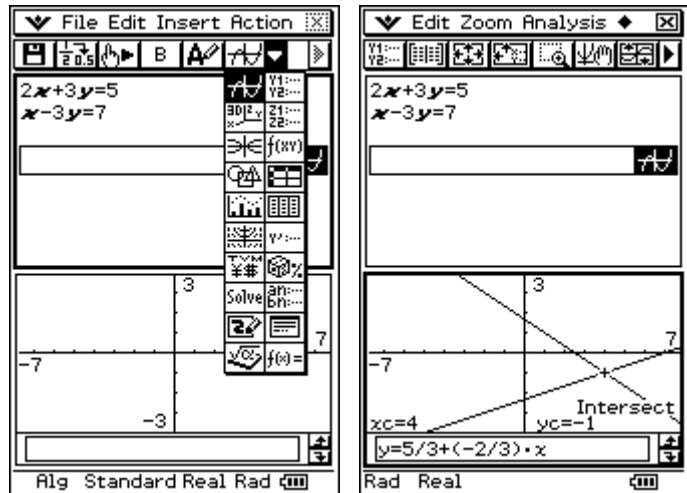


Solving Systems of Equations on the ClassPad

1. Solving a System of Equations Graphically

- Open **A** and **type in** the equations shown
- Insert** a **Graph** window strip
- Select** the **1st** equation and **drag** it to the **Graph window**
- Select** the **2nd** equation and **drag** it to the **Graph window**
- From the Graph window's menu, select **Analysis/ G-Solve/ Intersect**
- Note $x=4$, $y=-1$
Remember this point!



Exercise Set 1

In the following problems solve the system of equations you attain graphically.



- $$\begin{aligned} 4x+3y &= 13 \\ -5x+3y &= -7 \end{aligned}$$

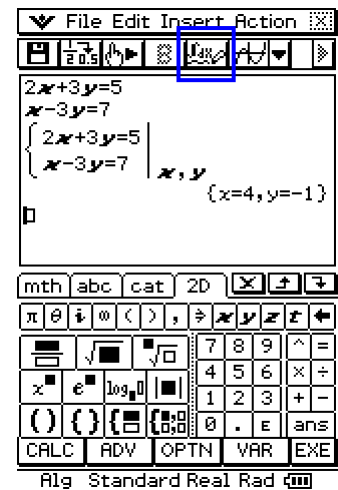
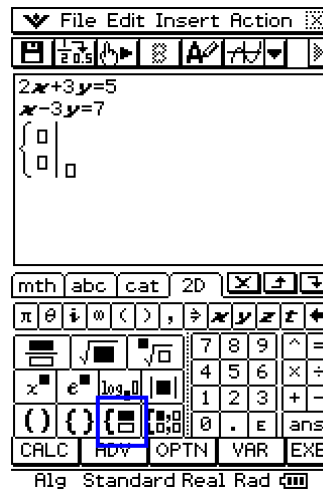
$$\begin{aligned} x &= \\ y &= \end{aligned}$$
- $$\begin{aligned} 29x+53y &= 19 \\ 25x-4y &= 47 \end{aligned}$$

$$\begin{aligned} x &= \\ y &= \end{aligned}$$
- What are the most simple equations that have as their solution $(-4, 7)$?
- The admission fee at a small fair is \$1.50 for children and \$4.00 for adults. On a certain day, 2200 people enter the fair and \$5050 is collected. How many children and how many adults attended?
- In a certain grocery store employees help you find the isle you are looking for with a math riddle. You are looking for flour. You are told: The sum of the digits of a two-digit number is 7. When the digits are reversed, the number is increased by 27. Find the isle.

Solving Systems of Equations on the ClassPad

2. Solving a System of Equations using 2D Math

- a. Keep your equations from step 1
- b. Delete the Graph strip by tapping **inside the strip** and selecting **Edit/Delete Line**
- c. Open the keyboard
- d. Tap on the **2D** tab
- e. Tap the System of Equations symbol ()
- f. Drag each equation to a box inside 
- g. Type your variables: **x,y** into the outside box
- h. **Change** the line to a **math line** and press **E**



Exercise Set 2

In the following problems solve the system of equations you attain using 2D math.

1. Two small pitchers and one large pitcher can hold 8 cups of water. One large pitcher minus one small pitcher constitutes 2 cups of water. How many cups of water can each pitcher hold?

2. A test has twenty questions worth 100 points. The test consists of True/False questions worth 3 points each and multiple choice questions worth 11 points each. How many multiple choice questions are on the test?

3. You and your friend each purchased identical subscriptions to an online video rental site. When you joined, you each paid the one-time membership processing fee. You also paid a flat rate for each movie that you downloaded. By the end of the first month, you had downloaded 8 movies and paid \$16.50, while your friend had downloaded only 6 movies and paid \$14.00. What was the one-time membership fee? What was the per-movie rental fee?

Solving Systems of Equations on the ClassPad

3. Solving a System of Equations Using rref & Matrices

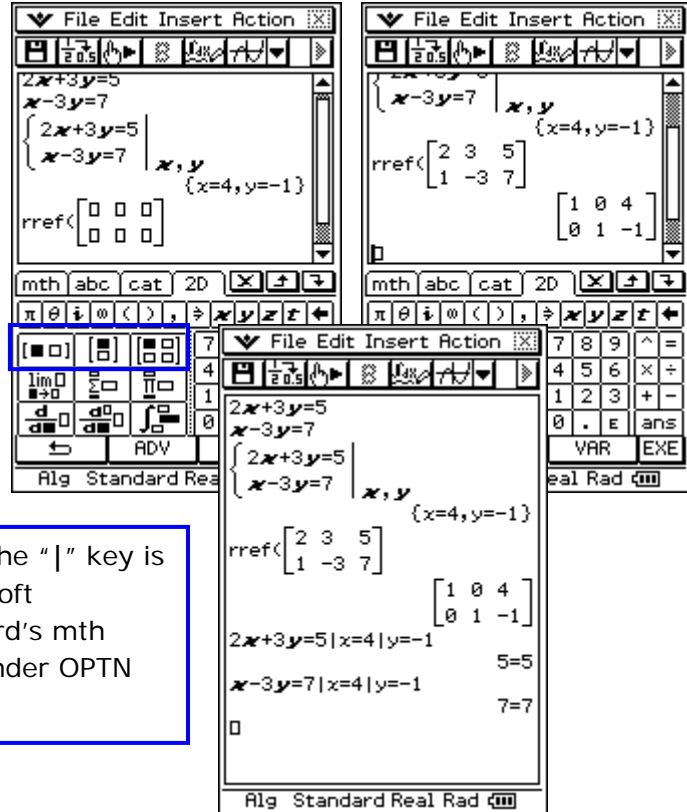
- Type in **rref(**
- Input a **2x3 matrix** template
- Type in** the coefficients of your system of equations
- Press **EXE**

*Notice the x-coefficients were in column 1; y-coefficients were in column 2.

Row 1 of the answer can be read **1x=4 or x=4**, row 2 can be read **1y=-1 or y=-1**

- ☒ Let's check
- ☒ Drag and drop the 1st equation to the next open math line
- ☒ Following the equation **type** |x=4|y=-1
- ☒ Press EXE (5=5 is true so it checks)
- ☒ Repeat with the 2nd equation

Recall the "|" key is in the soft keyboard's mth page under OPTN



Exercise Set 3

In the following problems solve the system of equations you attain using rref on a matrix.

1. A passenger jet took three hours to fly 1800 miles in the direction of the jet stream. The return trip against the jet stream took four hours. What was the jet's speed in still air and the jet stream's speed? Hint: Rate*Time=Distance



2. Studies confirm the obvious between students who procrastinate and their stress level. As the quarter progresses the stress level of procrastinators follows the equation

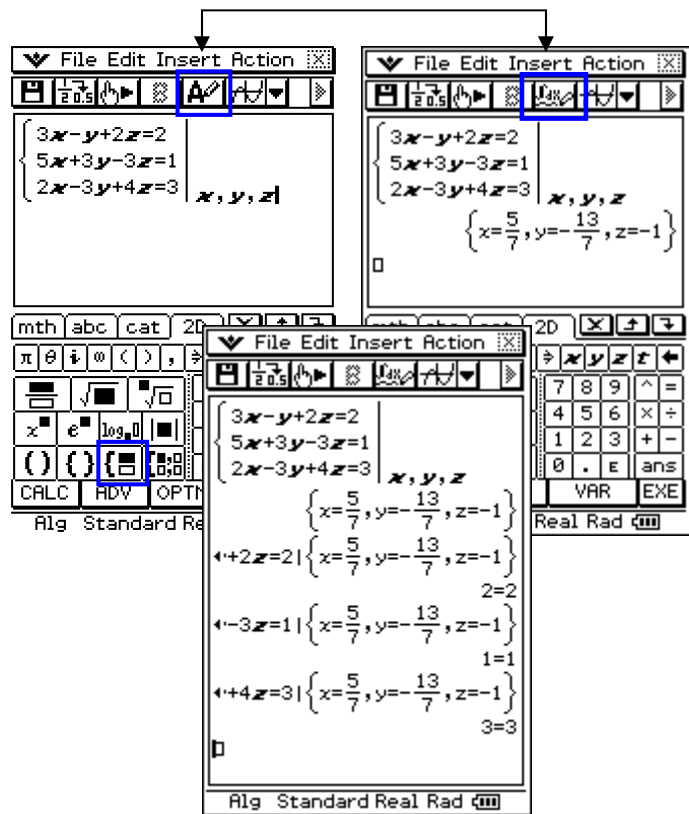
$$y = \frac{9}{14}x + \frac{7}{4}. \text{ The stress level of non-procrastinators follows the equation } y = \frac{1}{5}x + \frac{118}{25}.$$

Find the week at which their stress level is the same.

Solving Systems of Equations on the ClassPad

4. Solving a System of Equations with Three Unknowns

- a. Clear your eActivity window
- b. Tap on the **2D** tab
- c. Tap the  button
- d. Tap the System of Equations symbol () **twice**
- e. **Type in** the equations shown
- f. **Type in** x, y, z into the outside box
- g. **Change** to a **math line** (tap \cup) and press **EXE**
 - ☒ An easy way to check:
 - ☒ Select the first equation and drag to the next math line
 - ☒ Input | (the with key)
 - ☒ Select your answer and then drag & drop it following the | key
 - ☒ Repeat for equations 2 and 3



Exercise Set 4

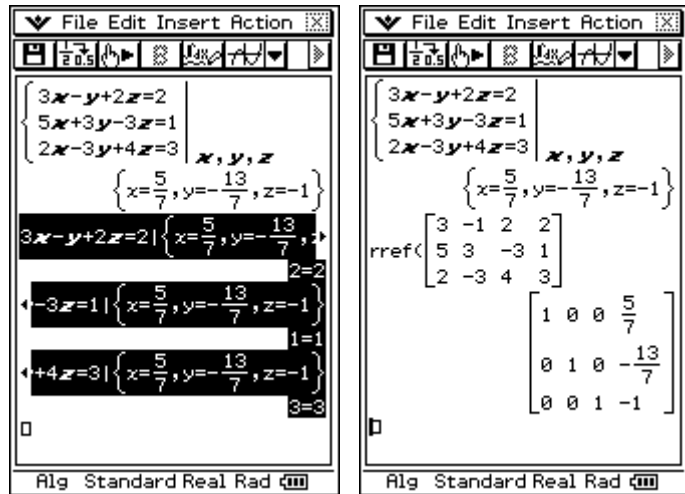
In the following problems solve the system of equations you attain using 2D math.

1. Twenty five coins, whose value is \$2.75 are made up of nickel, dime and quarters. If the nickels were dimes, and dimes were quarters, and the quarters nickels, the total value would be \$3.75. How many coins each type are there?
2. You are a contestant on "Who want to be a millionaire." Your million dollar question is: The sum of the digits of a three-digit number is 13. If the tens and hundreds digits are interchanged, the new number is 90 less than the original, and if the units and hundreds digits are interchanged, the resulting number is 99 less than the original. Find the original number.

Solving Systems of Equations on the ClassPad

5. Solving a System of Equations with Three Unknowns and rref

- Select** the three lines used for checking and press the **delete** key
- Type in **rref(**
- Following **rref(**, input a **3x4 matrix** ...this is fun
- Type in** the coefficients of your system of equations
- Press **EXE**
- Can you read the solution from the resulting matrix?



*Note: We cannot find the solution graphically on the ClassPad because we can only graph one 3-D graph at a time. For the 1st equation you could graph $z = -3x + y + 2$ in a 3-D graph window and a flat plane would be drawn. If we could graph the other two planes in the same window, they would all intersect at just one point: $(x=5/7, y=-13/7, z=-1)$.

Exercise Set 5

In the following problems solve the system of equations you attain using rref on a matrix.

- If A, B and C work together on a job it will take $1\frac{1}{3}$ hours. If only A and B work, it would take $1\frac{5}{7}$ hours, but B and C work, it would take $2\frac{2}{5}$ hours. How long would it take each man, working alone, to complete the job.
- Marina had \$24,500 to invest. She divided the money into three different accounts. At the end of the year, she had made \$1,300 in interest. The annual yield on each of the three accounts was 4%, 5.5%, and 6%. If the amount of money in the 4% account was four times the amount of money in the 5.5% account, how much had she placed in each account?