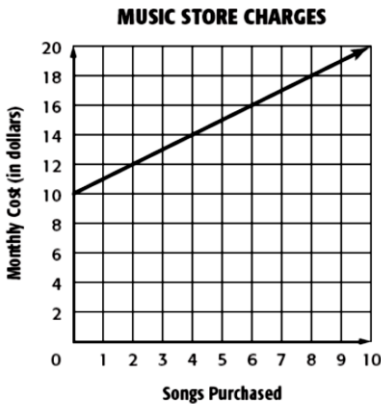


Algebra U7L1 – Graphing Linear Equations using Graphing Calculators

Warm Up...

A.3C – real world linear functions:

The graph below displays the amount a music download store customer pays per month.



What does the y-intercept indicate?

A.2C – write equation from table or graph:

Write an equation for the situation represented in the table at the bottom of this box

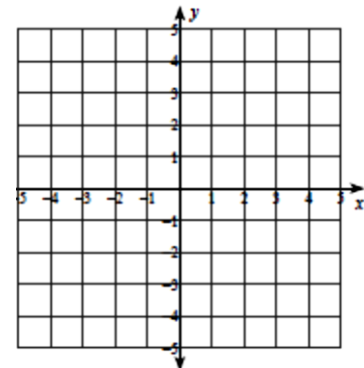
Nan's Weekly Salary					
Sales Made	1	2	3	4	5
Salary	\$250	\$300	\$350	\$400	\$450

Recent Review:

Graph the system of inequalities and shade the solution set (the section that overlaps)

$$y \leq \frac{1}{2}x + 2$$

$$y < -2x - 3$$



Let's WRAP UP Unit 6: TEST Tracking

Tested Objectives	Shade the questions you got correct										Percent
A.3D – Graph the Solution Set of Linear Inequalities on the Coordinate Plane	1	3	4	5	7	11	13	14	16	18	
A.2H – Write Linear Inequalities in two variables from a problem situation	2		6			17					
A.5B – Solve Linear Inequalities in one variable, with distribution or a variable on both sides	8	9	10	12	15						
Reflect on your strengths...											

Welcome to UNIT 7... LINEAR FUNCTIONS! BOOYAH!!

Today's Goal:

- KWBAT Graph Systems of Linear Equations using graphing calculators.
- WHY? We are starting Unit 7 today! We will be diving deeper into linear functions, for example by looking at parallel and perpendicular lines, lines of best fit to make predictions with data, direct variation, and transformations on the linear parent function. The calculator will be a helpful tool during this unit, so I wanted to take a day to build our graphing skills on the TI-84! We will take this opportunity to review solutions to systems of equations as well ☺

Example 1:

- o Make sure that your WINDOW is set to the standard window press **ZOOM** 6: Zstandard.

```

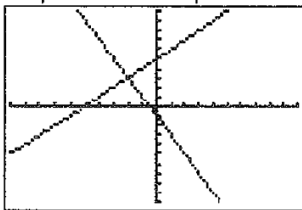
WINDOW
Xmin=-10
Xmax=10
Xscl=1
Ymin=-10
Ymax=10
Vsc1=1
Xres=1
    
```

- o Enter the two equations shown below into the **Y=** editor of your calculator.

```

Plot1 Plot2 Plot3
Y1=X+5
Y2=-2X-1
Y3=
Y4=
Y5=
Y6=
Y7=
    
```

- o Graph the two equations.



Just by looking at the graphs, what do you think is a reasonable solution for this system of equations?

Let's look at the tables for these two equations.

- o Select **2nd** **WINDOW**, which is the TBLSET editor.
- o Check to be sure your table is set up as in the screen shot below.

```

TABLE SETUP
TblStart=-4
ΔTbl=1
Indent: Ask
Depend: Ask
    
```

- o Select **2nd** **GRAPH**, which is TABLE.

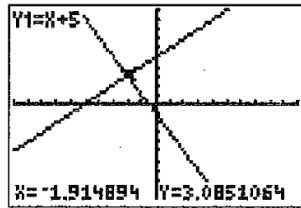
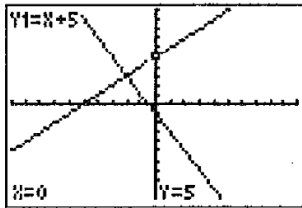
X	Y1	Y2
-4	1	7
-3	2	5
-2	3	3
-1	4	1
0	5	-1
1	6	-3
2	7	-5

X=-4

2. How do you find the solution to the system from the table? Circle the solution on the screen shot.

Go back to graph and let's use the TRACE feature to find the solution by tracing.

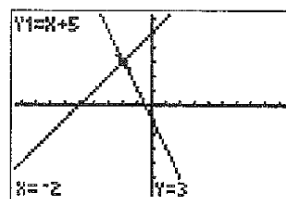
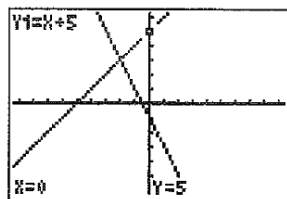
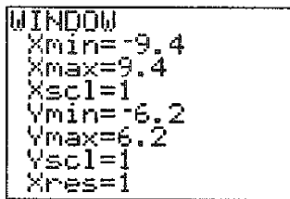
- o Graph the equations.
- o Select the **TRACE** feature.
- o Move the **←** and **→** arrows until the cursor nears the solution.



3. Using the TRACE feature, what do you guess is a reasonable solution to the system of equations?

Notice that when you use the TRACE feature, the cursor gets close but does not appear to be the exact answer that you found in the table.

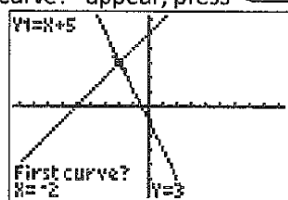
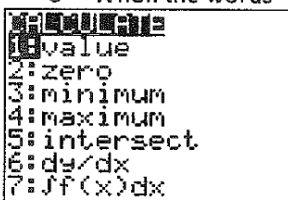
- o Try the WINDOW below. This window is sometimes called a friendly window.
- o Now, when you use the TRACE feature, the x values are decimals to the tenths place.



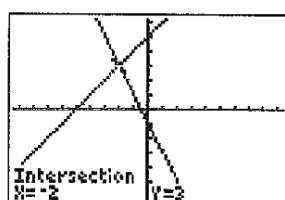
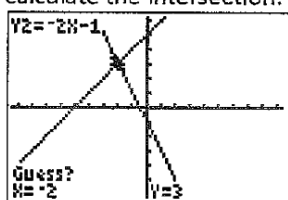
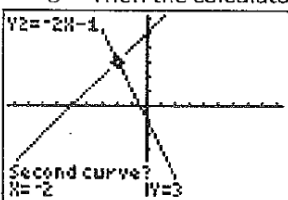
5. Using the friendly window, what appears to be the solution to the system of equations?

Let's let the graphing calculator do even more of the work.

- o Graph the two equations
- o Press **2nd** **TRACE**, which is the CALC feature.
- o Then choose 5: intersect in order to get the calculator to calculate the point of intersection, or solution.
- o When the words "First curve?" appear, press **ENTER**.

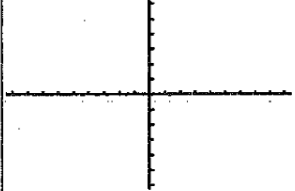


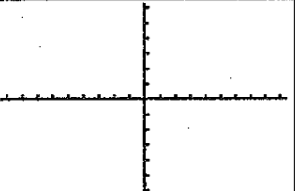
- o When the words "Second curve?" appear, press **ENTER**.
- o When the word "Guess?" appears, press **ENTER**.
- o Then the calculator will calculate the intersection.

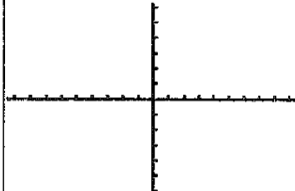


6. What is the calculated solution of this system of equations?

For each system of linear equations, use your graphing calculator to fill in the table and circle the solution. Then sketch a graph of the system of linear equations using the given window. Circle the solution in your sketch. Write the solution as an ordered pair in the Solution cell.

System of Equations	Table	Window																		
4. $y = -x + 3$ $y = 3x - 1$	<table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">X</th> <th style="width: 15%;">Y₁</th> <th style="width: 15%;">Y₂</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">-2</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">-1</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">0</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">1</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td></td> </tr> </tbody> </table>	X	Y ₁	Y ₂	-2			-1			0			1			2			<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> WINDOW Xmin=-9.4 Xmax=9.4 Xscl=1 Ymin=-6.2 Ymax=6.2 Yscl=1 Xres=1 </div>
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0																				
1																				
2																				
Graph	Solution																			
	(,)																			

System of Equations	Table	Window																		
5. $y = 2x - 4$ $y = 3$	<table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">X</th> <th style="width: 15%;">Y₁</th> <th style="width: 15%;">Y₂</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">-2</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">-1</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">0</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">1</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td></td> </tr> </tbody> </table>	X	Y ₁	Y ₂	-2			-1			0			1			2			<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> WINDOW Xmin=-9.4 Xmax=9.4 Xscl=1 Ymin=-6.2 Ymax=6.2 Yscl=1 Xres=1 </div>
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Graph	Solution																			
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System of Equations	Table	Window																		
6. $y = 3x - 4$ $y = -\frac{1}{3}x + 6$	<table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">X</th> <th style="width: 15%;">Y₁</th> <th style="width: 15%;">Y₂</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">-2</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">-1</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">0</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">1</td> <td></td> <td></td> </tr> <tr> <td style="text-align: center;">2</td> <td></td> <td></td> </tr> </tbody> </table>	X	Y ₁	Y ₂	-2			-1			0			1			2			<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> WINDOW Xmin=-9.4 Xmax=9.4 Xscl=1 Ymin=-6.2 Ymax=6.2 Yscl=1 Xres=1 </div>
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