Unit 4: Lesson 13 – Solving Systems of Equations
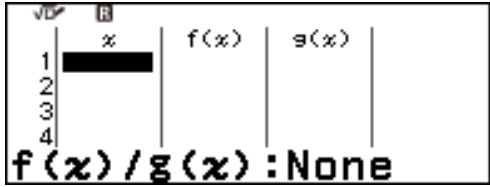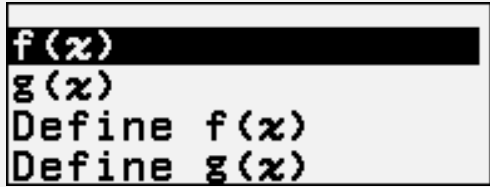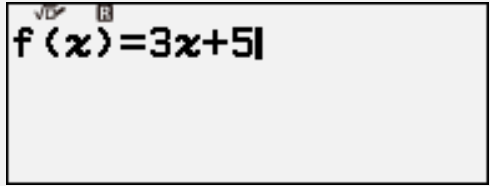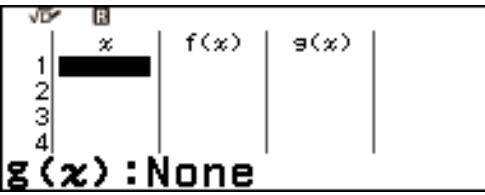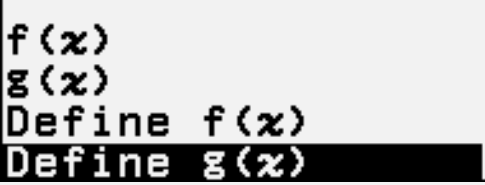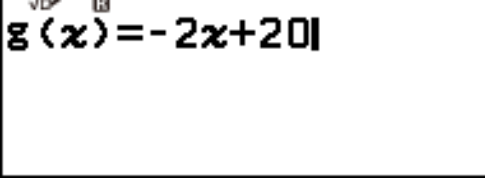
Activity 13.2: Matching Graphs to Systems
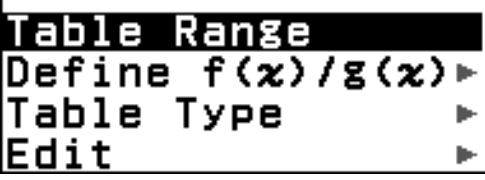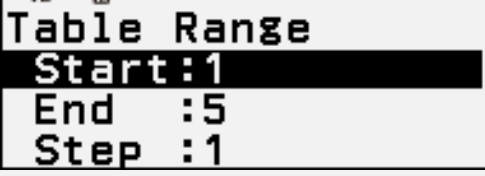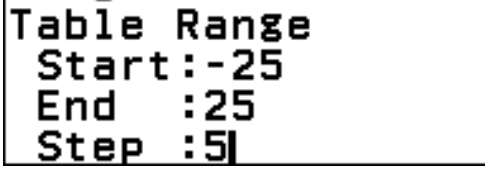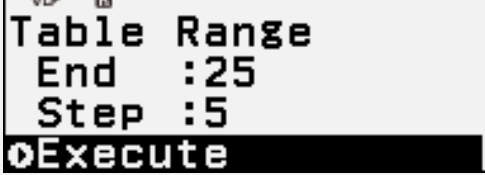
Skill: Use the Table app to graph a system of equations on www.ClassPad.net.

Activity Summary:

Students are asked in this activity for the first time to solve a system of equations algebraically. Students will also match these three different systems to their graphs using their knowledge of linear equations and an estimated intersection point from their solution to the system. The calculator can be used to create a QR Code to www.ClassPad.net to view the graphs and their exact intersections to check their work. The table on the calculator can also verify that for a given x solution to the system, that y values will be equal.

1. Turn on the calculator with the ⏻ - **On** button. Press ⌂ – **Home** and then use the arrows to highlight the **Table app**.	Calculate Statistics Distribution Spreadsheet Table Equation
2. Press either **OK** or **EXE** to open the **Table app**. Explain that *f(x)* and *g(x)* are another way to write *y* for two different equations. Both will need to be defined before we create a **table** or the **QR Code** to view the graph.	x f(x) g(x) 1 2 3 4 f(x)/g(x):None
3. In *Unit 3 Lesson 4*, *f(x)* and *g(x)* were defined using the **Table Settings Menu**. Another way is by using the **FUNCTION Menu**. Press the **function key**, Ⓕ.	f(x) g(x) Define f(x) Define g(x)
4. The first system is $\begin{cases} y = 3x + 5 \\ y = -2x + 20 \end{cases}$. To enter the top equation for *f(x)*, press the down arrow twice to highlight **Define f(x)** and press either **OK** or **EXE**.	f(x)=
5. Now, enter the rest of the equation behind the equal sign. Type ③ ⓧ ⊕ ⑤.	f(x)=3x+5

6. Press either ⊙ or ⊗ when finished. Notice the **Table app** bottom display has changed to stating **g(x) :None** as **f(x)** has now been defined.	x f(x) g(x) 1 2 3 4 **g(x):None**
7. Press the **function key**, ⓕ, again. This time we will enter the equation for **g(x)**, our 2nd **y** in the system of equations. To quickly move to the bottom of the menu, press ⊗.	f(x) g(x) Define f(x) **Define g(x)**
8. Press either ⊙ or ⊗ to enter **g(x)**. Type ⊛ ⊖ ② ⓧ ⊕ ② ⓪.	**g(x)=-2x+20**
9. Press either ⊙ or ⊗ returns to the table. The graphs given range from a minimum *x*-value of -25 to a maximum *x*-value of 25. We want to set our table to match.	x f(x) g(x) 1 2 3 4
10. Press the **TOOLS** button, ⊙, to view the **Table settings**.	**Table Range** Define f(x)/g(x)▶ Table Type ▶ Edit ▶
11. Press either ⊙ or ⊗ to adjust the **Table Range**. The default settings are shown.	Table Range **Start:1** End :5 Step :1
12. Change the values as shown to the right by typing the value and pressing either ⊙ or ⊗ to move down to the next line.	Table Range Start:-25 End :25 Step :5
13. Once all three values are changed, **Execute** at the bottom will be highlighted.	Table Range End :25 Step :5 **▷Execute**

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| 14. Press either (OK) or (EXE) to view the table for the two equations. | |
| 15. To obtain the **QR Code**, press ⬆, (x) and then **scan** with an internet enabled device. | |

16. The **ClassPad.net** page will open on the device, as shown on the right.

17. To add the **point of intersection**, **(3,14)**, either select the spot from a touchscreen device or click on the point with a mouse.

18. Other important points, such as **y-intercepts** or **x-intercepts** can be added to the graph in the same way.

ClassPad Math

$f(x) = 3x + 5$

$g(x) = -2x + 20$

(3,14)
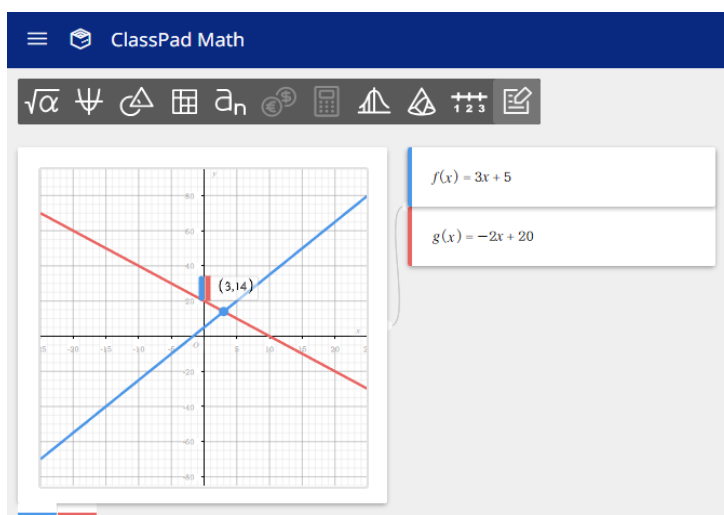
| 19. This system matches **Graph A**. The table can also be used to double-verify the solution to the system. On the calculator, press the **back key**, ↩, to return to the table. | |
| 20. Any **x-value** highlighted can be changed by typing a new **x-value**. Type and press either (OK) or (EXE). Both **f(x)** and **g(x)** show the same **y-value**, **14**, for the **x-value 3**. | |