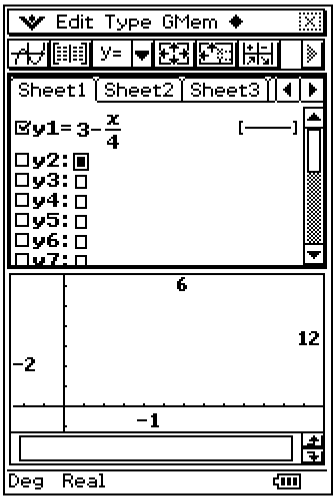
| Classpad Help Series sponsored by Casio Education Australia | | www.casioed.net.au | |
|---|---|---|---|
| 345 | Linear Programming | Author | Charlie Watson |
| | | Date | 31 January 2010 |
| | | CPM OS | **03.04.4000** |




Start in Graph and Table.

We will find the maximum value of $5x+15y$ given the four constraints

$y \le 3 - \dfrac{x}{4}$

$y \le 6 - x$

$y \ge 1$

$x \ge 2$

Tap **Edit, Clear All**.

Enter $3 - x/4$ for **y1** and tap **EXE**.

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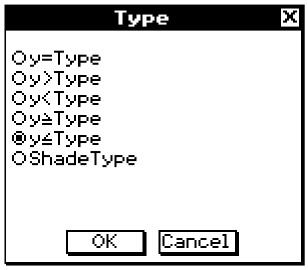
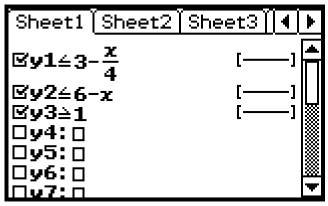



Tap onto the = sign in the **y1** line.

The Type box opens. Modify the type to suit the inequality as shown.

Tap **OK**.




Now enter both of **y2** and **y3** and modify the type for each.

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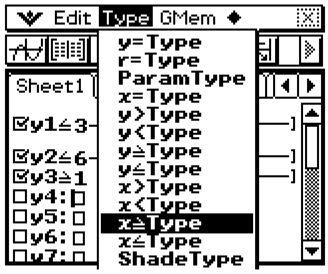
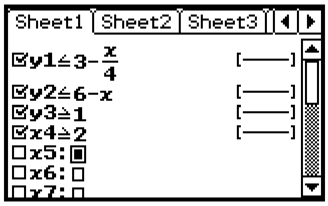



Tap into the box for **y4**.

Tap Type and tap $x \ge Type$.

*(This sets all functions from now on to be this type. When finished, tap Edit, Clear All or Type,* $y = Type$ *to reset.)*




Complete **x4** by entering a 2 and then tapping **EXE**.

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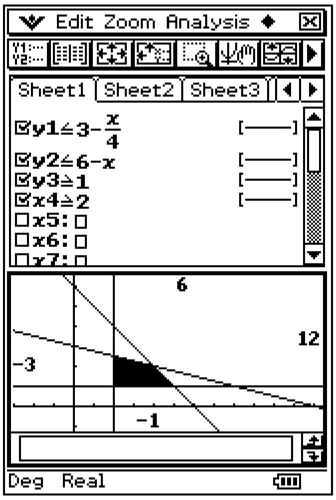
Tap the Draw Graph icon.

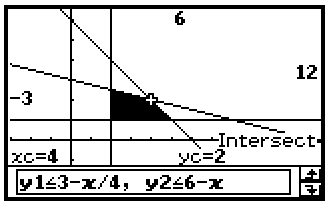
Tap **Zoom, Quick Initialise**.

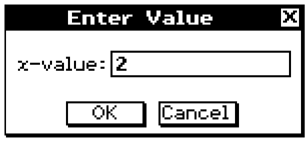
Tap the Pan icon and drag the graph to centre the feasible region.




Find the corners of the feasible region using **Analysis, G-Solve, Intersection**.

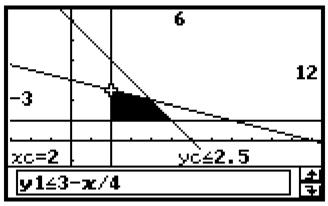
*(Note that with multiple lines drawn, use the up/down cursor control to select the first line, tap EXE and repeat to select the second line.)*




Classpad will only find intersection points of **y=** function types, not **x=**.

To find the corners on the **x=** line, tap **Analysis, Trace** and use the up/down cursor to select one of the sloping **y=** lines. Then press the **2** key to open the **Enter x-value** box and tap **OK**.




Record the coordinates of the 3 vertices likely to maximise the objective function and open the Main application.

Open the keyboard. Tap the **2D** tab and **CALC**.

Tap [■□] once and [■/□] twice.

Enter the 3 sets of $(x, y)$ coordinates for the vertices as shown.

Enter × and then tap [■/□] once and enter the objective function coefficients of $x = 5$ and $y = 15$.

Tap **EXE**.

Observe that the (4, 2) vertex maximises the objective function with a value of 50.