

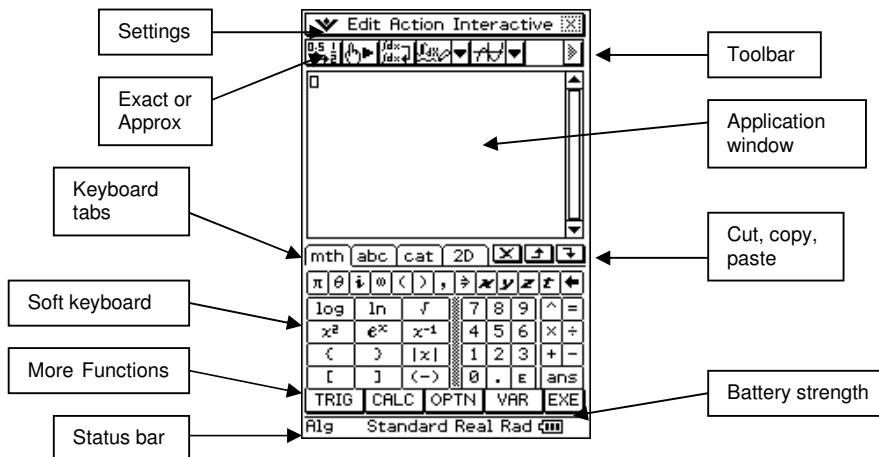
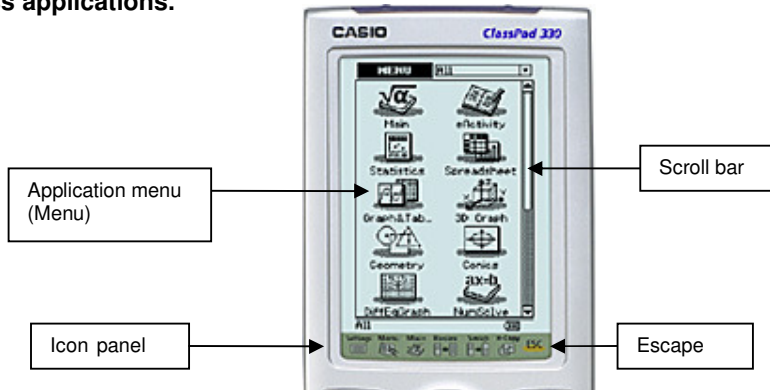
# CASIO CLASSPAD – BASICS

## BEFORE BEGINNING:

- Check Operating Software (OS) version – should be 3.03.3000 (or at least 3.02.3000)  
(Menu, System, System(at top of screen), Version (Software))  
If this needs to be upgraded, the latest version is available at <http://edu.casio.com/dl/>.


To check your version, at the Application Menu (see below), scroll down to System, tap System right at top of screen, tap Version (Software).

**Note:** The Application Menu on the Classpad is like the desktop on your computer which contains the icons for all the installed applications. Tap the Menu icon in the Icon Panel (the fixed menu at the bottom of the display) to access applications.



The area on your calculator containing the physical buttons is called the **keypad**.

## MAIN APPLICATION:

- Check settings for the format that you need for most calculations.  
(Menu, Main, , Basic Format)

Check Current folder = main  
 Number format = Normal 1  
 Angle = Degree  
 Advanced,  descending order

Choose Set.

- At the bottom of the Main screen, it should look like

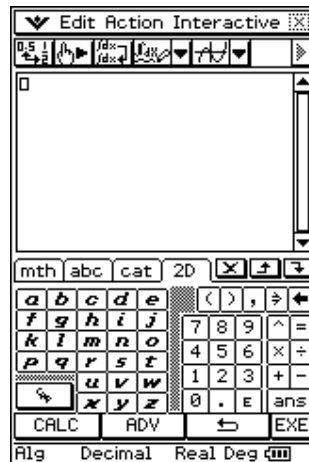
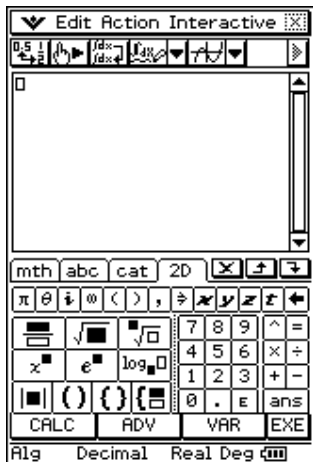


Anything that needs changing, simply tap on to toggle between the various available options.

Use of Edit, Clear All and Clear All Variables – assign values to variables using  $\Rightarrow$

Use of Edit, Undo/Redo

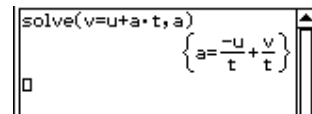
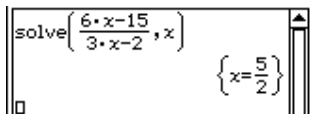
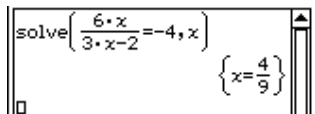
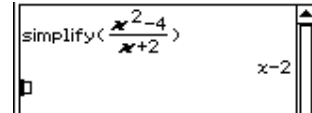
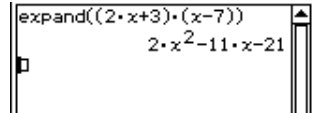
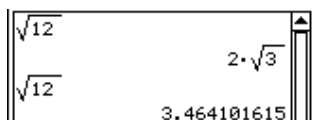
Keyboard tabs and menus (**Mth**, **2D** (use this the most) **abc** (do not use for variables), **cat** (list of commands also available under Active and Interactive).



Action v Interactive - try to use Interactive as much as possible, no special knowledge of syntax required.

Copy and pasting - highlight, drag and drop - copy and paste tools - edit, copy and paste.

**Calculations in the Main application:**



$$\begin{cases} 4x-2y=14 \\ 5y-3x=42 \end{cases} \quad \begin{matrix} x, y \\ \{x=11, y=15\} \end{matrix}$$

```
factor(14+31x-10x^2)
      -(5x+2)(2x-7)
factor((x+2)^2-4)
      x(x+4)
factor(60)
      2^2*3*5
```

e.g. Create a list of  $x^2 - 5$  values from  $x = 1$  to  $x = 12$ .

### Graphing in the Main application:

Check your Graph format settings.

G-Controller puts arrows on the ends of the axes and allows you to adjust the View Window of your graph easily.

e.g. Enter  $x^3 + 4x^2 + x - 5$

at top of Main screen. (It does not matter whether you put  $y =$  or not)

Highlight function, drag and drop into graph part of screen. You can use either input (left side) function or output (right side). Graph will be drawn automatically.

gives


Thick black line indicates which part of screen is 'active'.  
 Toolbar options change, depending on which application is active.

In Graph part of screen, useful options available are:

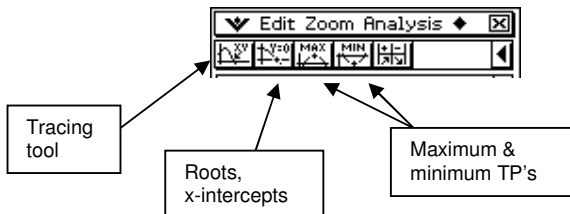
Pan 

Zoom (menu) (If no axes show try Zoom, Quick Initialise)

Box Zoom 

Auto  (this is not always the most 'friendly' way of 'seeing' the graph)

Tap 'over the page' tool to get more options:



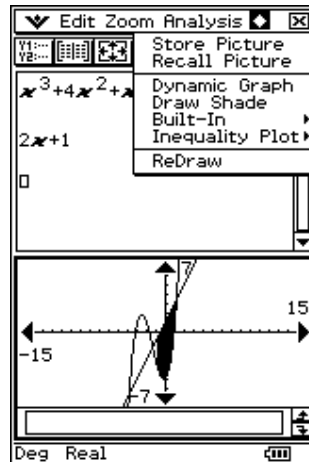
Tap **Analysis** in the Menu bar to find G-Solve and a lot of tools for analysing the graph.

Enter  $2x + 1$  in Main, drag and drop to Graph and then find Intersection from Analysis, G-Solve.

Keypad buttons also give quick zoom options -  $+$  button = zoom in  
 $-$  button = zoom out  
 $=$  button = auto (fit graph to screen)

If the View Window you try does not work, go to Zoom in Menu bar and choose Previous for a quick undo of a failed choice of axes scales.

Shading can be added to show areas between curves by going to Draw Shade in the 'diamond' menu in the Menu toolbar and entering function and x values between which you wish to shade.

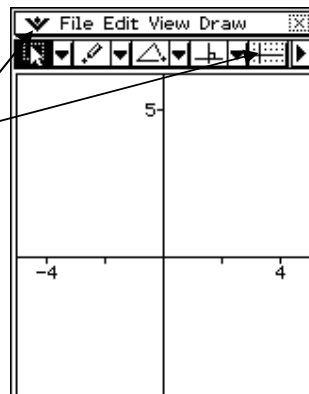


**GEOMETRY:**

If anything previous workings are on the screen, tap File, New, OK.

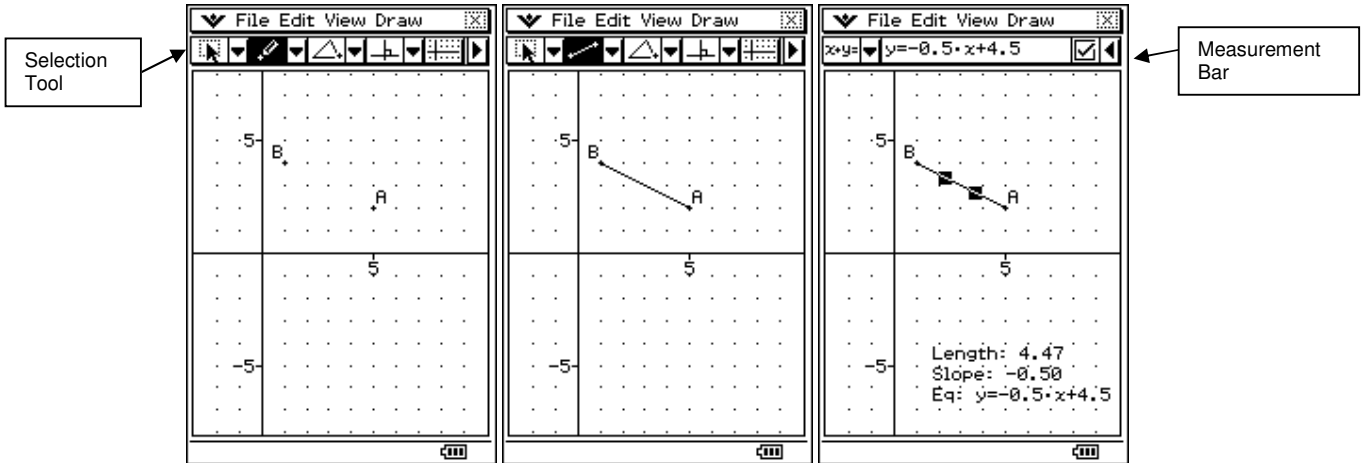
The icon indicated in the toolbar in the diagram toggles between a number of versions of the screen in the Geometry application.

You can set a particular View Window by going to the Settings icon in the Menu bar. This shows an xmin, xmax and ymid (the y value you want in the middle of your screen.)



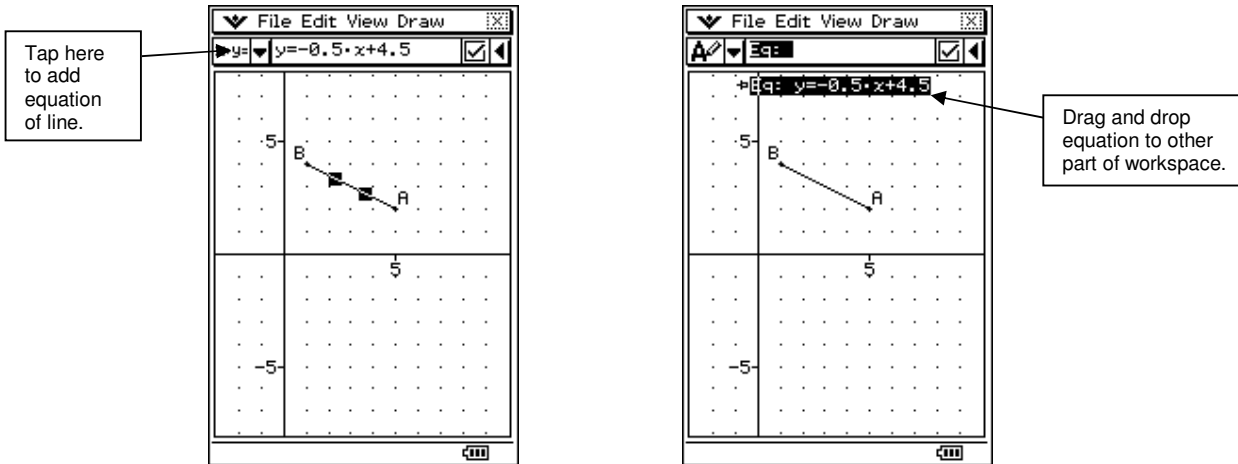
e.g. Have axes and grid on, set View Window to  $x_{\min} = -3$ ,  $x_{\max} = 10$  and  $y_{\text{mid}} = 0$

a) Find equation of the line through (5, 2) and (1, 4)



Try moving the ends of line AB around and see how the expressions (length, slope, equation) on the screen change.

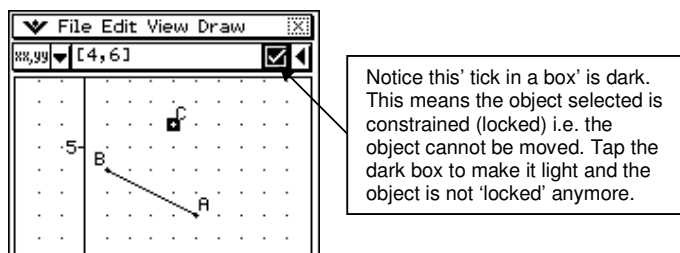
**(Add expressions to the working area**, by selecting the line, tapping the relevant measurement icon again when it is displayed in the measurement bar. Tap on the expression in the work space, then drag and drop it to move it to another part of the work space.



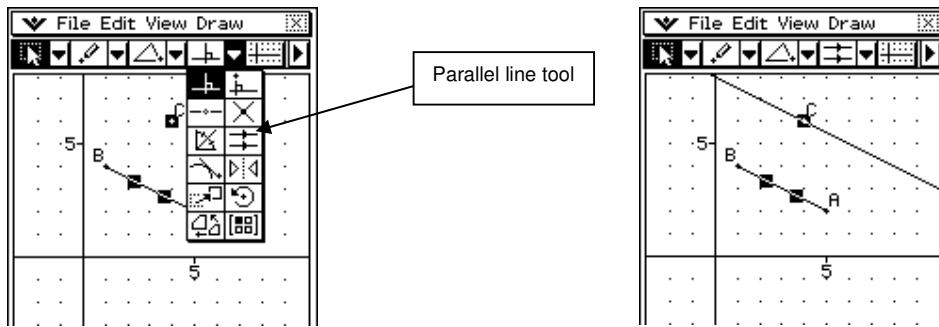
b) Draw line parallel to AB through (4, 6) and find equation.

Draw the point (4, 6) but deliberately put it in the wrong place.

(If points are accidentally put in the wrong place, they can be moved by selecting, typing the appropriate coordinates in measurement bar, EXE



Draw the line parallel to AB through point C – select line AB and select C

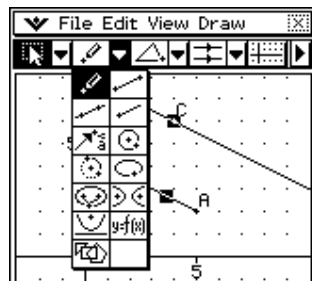


Select line containing point (4, 6) and go to measurement bar to find equation.

c) Find the line perpendicular to AB through point (-1, -2)

**Common Drawing Tools:**

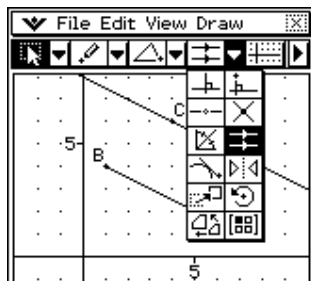
- Point
- Line
- Vector
- Arc



- Line segment
- Ray
- Circle
- Ellipse

**Common Construction Types:**

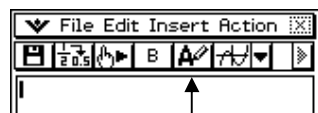
- Perpendicular bisector
- Midpoint for a line segment
- Angle bisector
- Tangent
- Image under Translation
- Dilation



- Perpendicular line
- Point of intersection
- Parallel line
- Image under Reflection
- Image under Rotation
- Transformation by matrices/vectors

**EACTIVITY:**

An Eactivity allows you to create a 'program' which can perform multiple functions such as programs, worksheets with activities, etc. Great for investigative work.

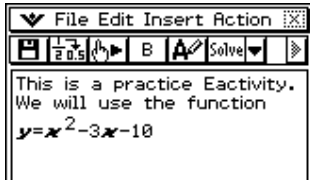


Puts in text and numbers, but does NOT calculate. EXE acts like Enter on a computer in this mode.



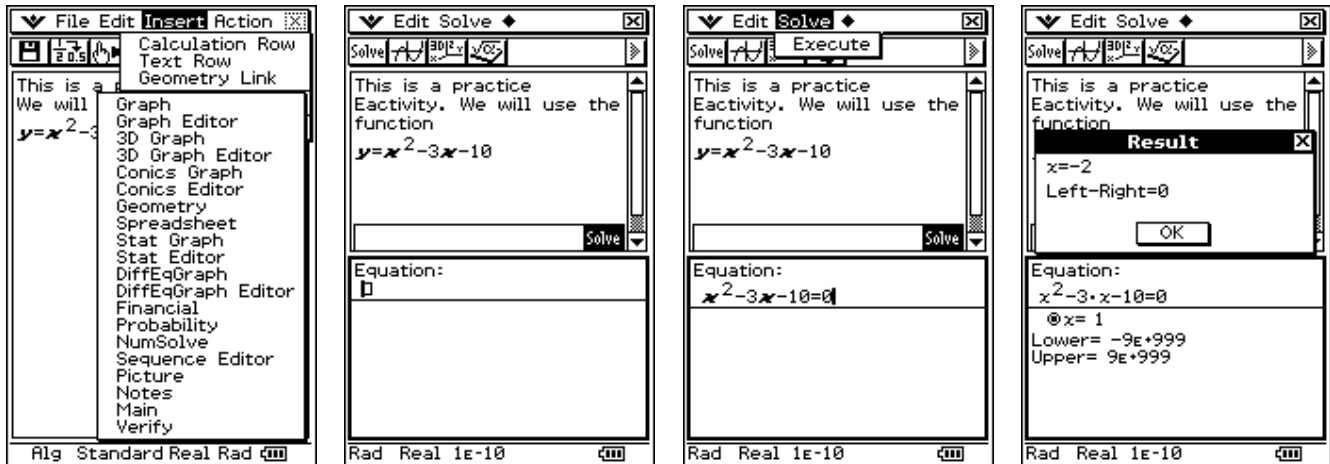
Puts in numbers and does calculations in this mode.

e.g. Type in 'This is a practice Eactivity. We will use the function  $y = x^2 - 3x - 10$



A **strip** is a link to one of the Classpad's applications. Putting several different types of strips in an Eactivity gives you access to a number of different applications all in the same screen. Again great for investigating.

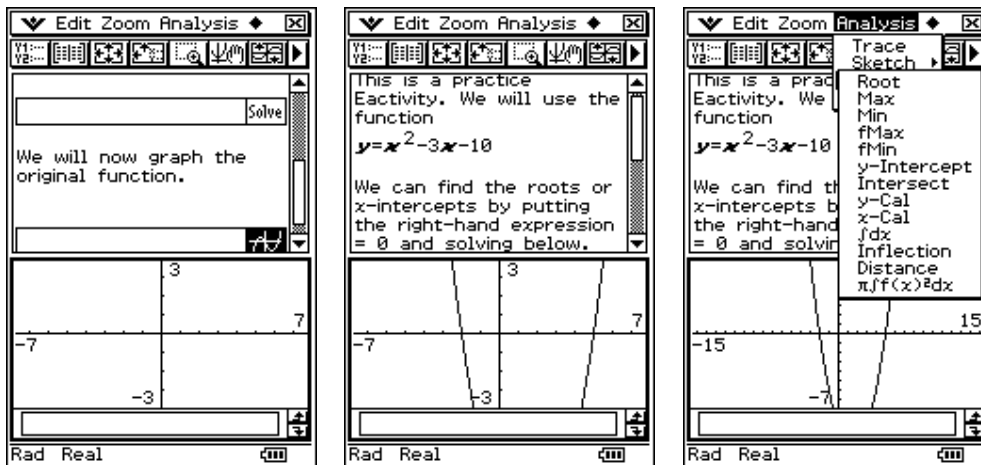
Insert a Num Solve strip. Highlight & copy the equation into Solver to find the solution to  $x^2 - 3x - 10 = 0$



To get the possible second value, type in a 'guess' for x in the Solver screen, then tap Solve, Execute again to get  $x = 5$ .

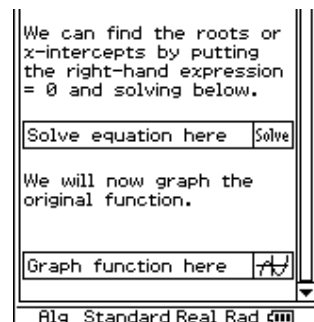
To close the Solver strip, tap on the dark rectangle Solve.

In your Eactivity, type 'We will now graph the original function'. Insert a Graph strip as before.



You can do all the usual analysis on your graph while the graph part of the screen is active. When you have finished with the graph, close the strip by tapping on the dark graph icon.

You can write text in the strip to indicate what should be done once the application is accessed.



## Geometry Link:

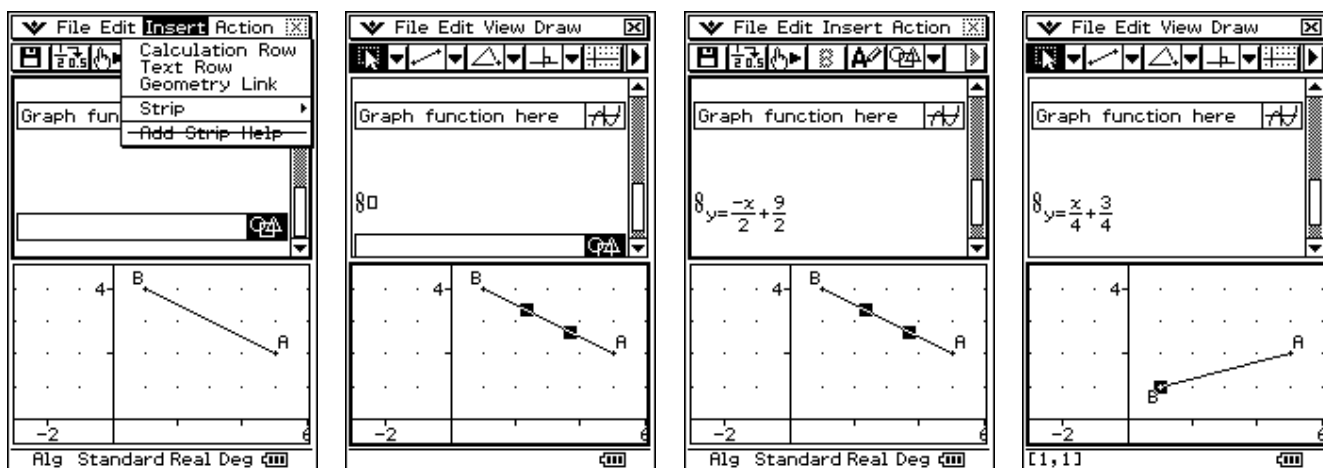
Important: Ensure that there are no values stored in your variables – go to Action, Clear All Variables, OK.

When a Geometry strip is inserted in an Eactivity, a Geometry Link can be inserted that allows you to see how an equation changes as a geometry object is changed.

e.g. Insert a Geometry Strip in an Eactivity.

Plot the points A(5, 2) and B(4, 1), join the two points. (Set View Window at xmin = -3, xmax = 6, ymid = 2)

Insert a Geometry link above the strip where it can be seen.



Select the line in the bottom half of the screen and drag and drop to the little box beside the Geometry Link. The line's equation will be displayed.

Move the end points of the line and observe the changes to the equation.

## ACTIVITIES (using Eactivity):

- Find the roots of the parabola  $y = 0.25x^2 + 3x + 5$   
In Eactivity, input the function.
  - Insert a Main strip - solve using 'Solve'
  - Insert a Graph Editor strip – solve using 'Table'  
solve using 'Graph'
- Find the inverse function for  $y = 4x - 2$   
In Eactivity, input the function.
  - Insert Main strip - invert (Interactive, Assistant, invert)  
- then solve for y using 'Solve'
  - Insert Geometry strip draw line, constrain  
draw  $y = x$   
select reflection tool  
find equation
- Find the intersection between the top half of  $x^2 + y^2 = 4$  and the line  $y = x - 1$ .
  - Insert Main strip - enter  $x^2 + y^2 = 4$   
- solve for y (choose +ve part)  
- enter  $y = x - 1$   
- graph both and find intersection.
  - Insert Geometry strip draw arc - constrain to given equation  
draw a line - constrain to given equation  
select both and construct intersection  
select point and find its coordinates.