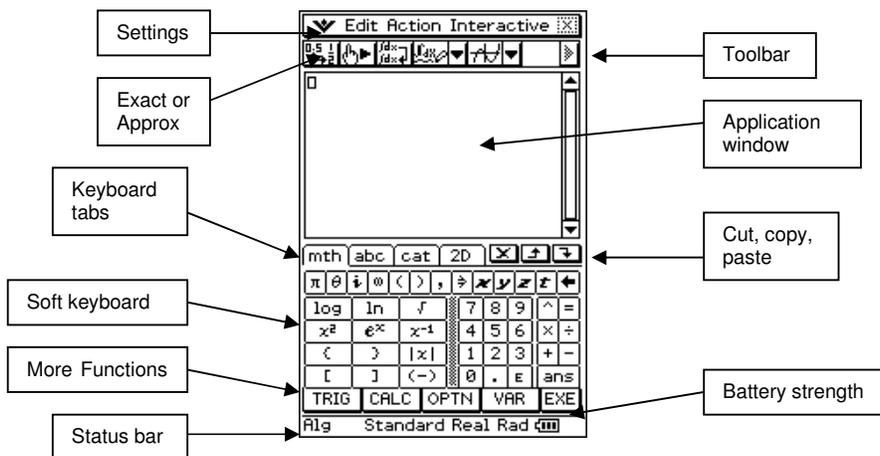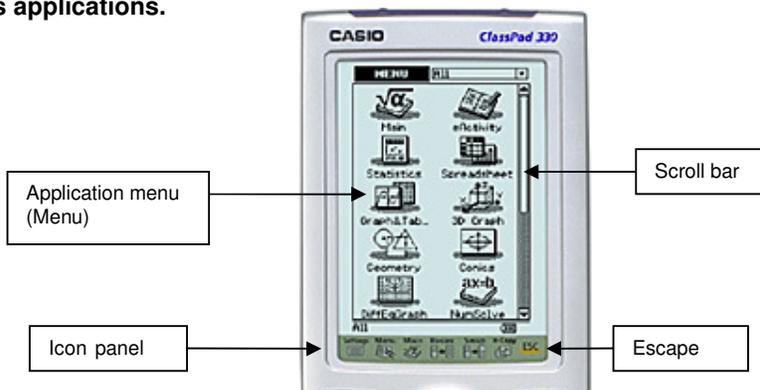# USING CASIO CLASSPAD TO CREATE EACTIVITIES:

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.**

Application menu (Menu)

Scroll bar

Icon panel

Escape

Settings

Exact or Approx

Toolbar

Application window

Keyboard tabs

Cut, copy, paste

Soft keyboard

More Functions

Battery strength

Status bar

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

Alg   Standard Real Deg

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 (can only be used for the one previous action)

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

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).
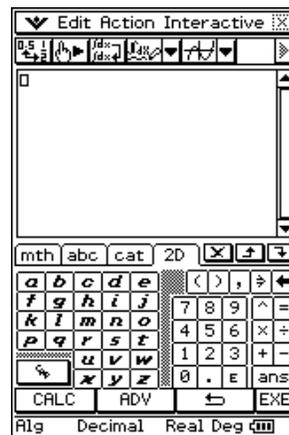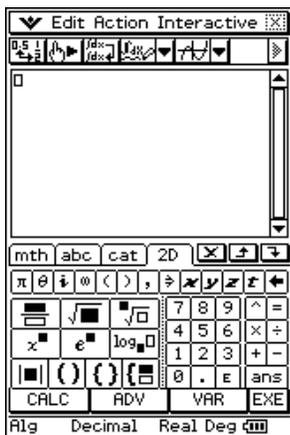
For variables other than *x , y , z*, use VAR option under **mth** or **2D** tab.

Copy and pasting - highlight, drag and drop - copy and paste tools   X ± ↓   - Edit, cut, copy and paste.

CREATING an EACTIVITY:

An eActivity allows you to create a 'program' which can perform multiple functions such as solving equations, drawing graphs, working with geometrical figures, etc. It can also be used to create worksheets with activities which can be given to and used by a whole class of students. Great for investigative work.
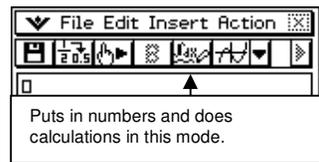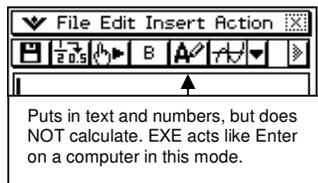
EXAMPLE 1:

Consider   **UNIT 2B MAT**   **2.1.1**   **_"use surface area and volume formulas directly and inversely for_**
                                          - cubes, right prisms and pyramids
                                          - cylinders, cones, spheres (decimal answers only)"

An eActivity can be created which will allow the students to store and work with the formulas for each of the 3D figures mentioned above.

In the **_EActivity_** application,

Tap File, New, OK to get a fresh screen if there is anything on the screen. This also restores default settings.

Note that information can be entered into the eActivity using two formats: one where any equation can be input but it appears as 'text' only (no solving or calculating happens), the second is where computations take place. See next page.

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.

We want to input text only at first.

Ensure that the text writing icon is showing (Fig 1). This allows text and equations to be entered without equations being solved/calculated.
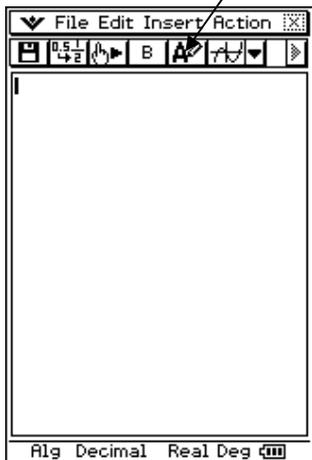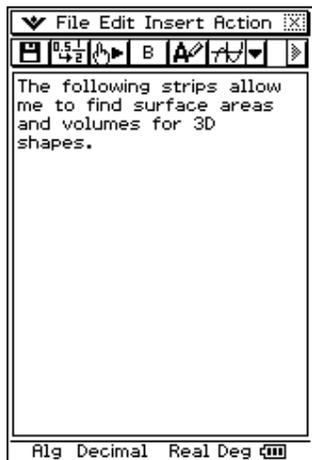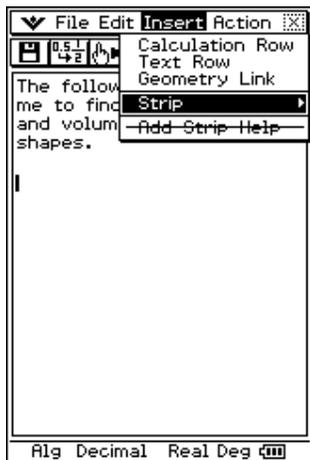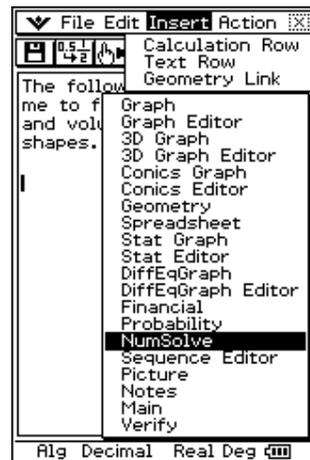

| Fig 1 | Fig 2 | Fig 3 | Fig 4 |

Enter some text that describes what the features of the eActivity are intended to do (Fig 2). Then insert an 'equation-solving' strip.

*A **strip** is a link to one of the Classpad's applications. Putting several strips in an Eactivity can give you access to a number of different applications all in the same screen They are like web links in a Word document.*

Tap Insert, Strip (Fig 3), NumSolve (Fig 4) to insert a strip (link) for solving equations. Input the formula for the surface area of a cube i.e. $S = 6xL^2$ using the keyboard and the **VAR** option in the **math** or **2D** tab (Fig 5), tap EXE Fig 6).

A value can then be entered for the length L of the side of a cube. Making sure that the radio button beside S is selected, tap Solve, Execute to solve for S (Fig 7). The solution appears as in Fig 8, tap OK to have the solution value displayed next to S.
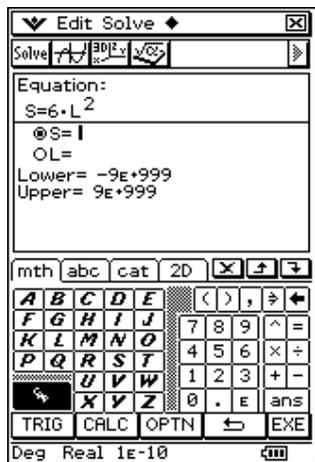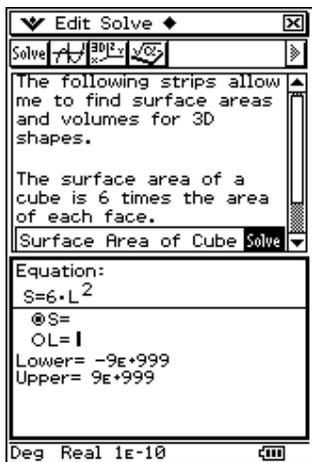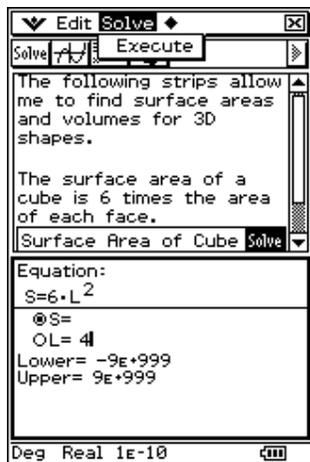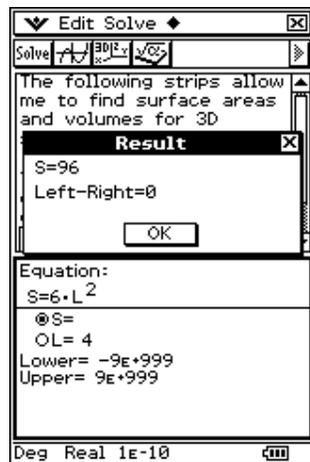

| Fig 5 | Fig 6 | Fig 7 | Fig 8 |

Turn the keyboard off to display a screen similar to Fig 6. To close the Solve strip, tap the dark rectangle saying Solve. Tap in the white space of the strip and give it a name such as Surface Area of Cube.

More strips can be added containing the formulas for other 3D shapes, with explanatory text before/after each one.

Fig 9 shows some text and then a strip for the volume of a cube.
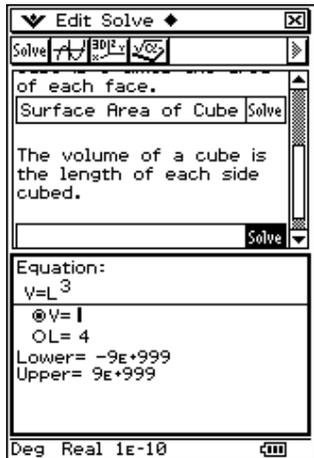

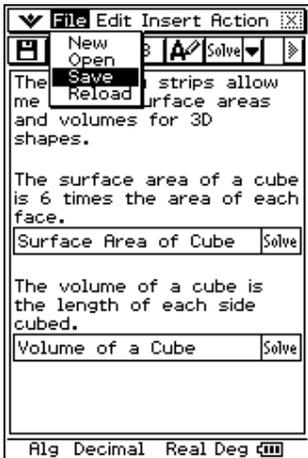Fig 9   Fig 10   Fig 11

When the eActivity is completed, it will need to be saved so that it can be used again. Make sure any strips are closed, then tap File, Save (Fig 10). Give the file a name (max = 8 characters), tap Save (Fig 11).

The eActivity will be saved as it was at that point, with any values in the Solve strips that were left there. It is probably best to make the Eactivity without entering any values in any of the strips first, name it and then save it in 'pristine' condition. It can then be used in any way necessary. When you then exit the eActivity, you will be prompted to Save Changes, to which you can then choose No to leave it in its original condition.

EXAMPLE 2:

The following is another example of an eActivity where a number of different types of strips are used in the one eActivity.

e.g.   Type in 'We will consider the function y = x^2 – 3x – 10' as shown below (Make sure that the 'text-writing' icon is showing in the toolbar.

> File Edit Insert Action
> We will consider the
> function
> $y = x^2 - 3x - 10$
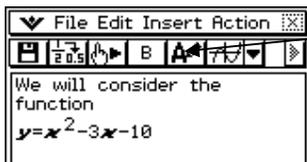
Insert a Num Solve strip (Fig 12, 13).
Highlight & copy the equation into Solver to find the solution to x^2 – 3x - 10 = 0

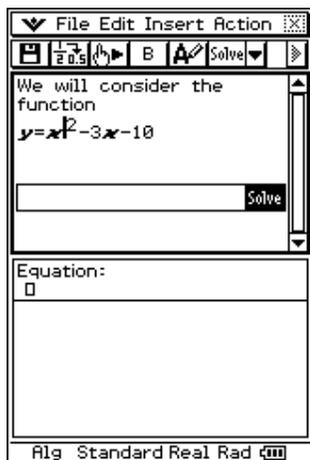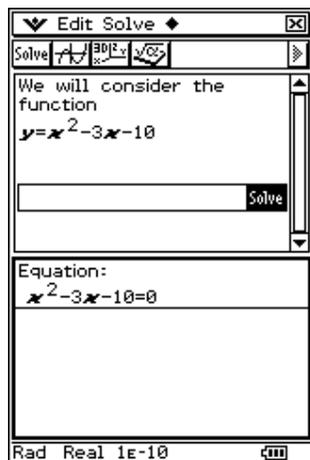Tap Solve, Execute to get the first possible solution. (Fig 15)
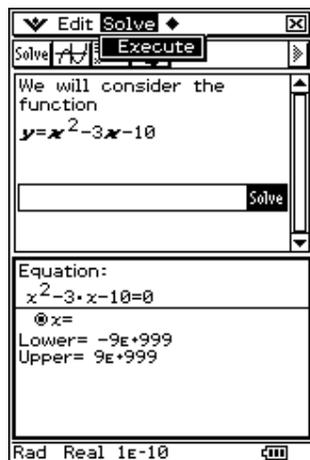
| Fig 12 | Fig 13 | Fig 14 | Fig 15 |

To get the possible second value, type in a 'guess' for x, say 10, in the Solver screen, then tap Solve, Execute again to get x = 5.
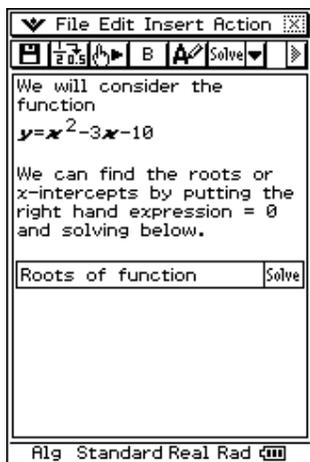To close the Solver strip, tap on the dark rectangle Solve. Give the strip a 'name' (Fig 16).
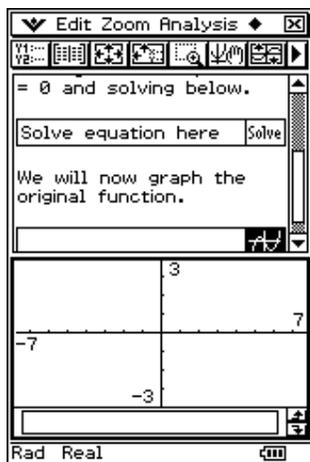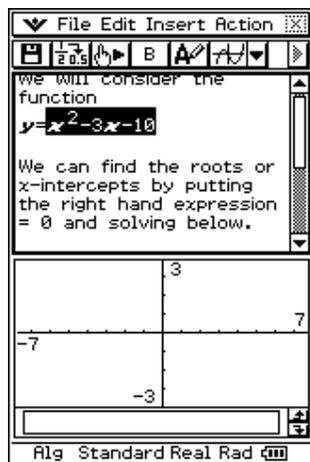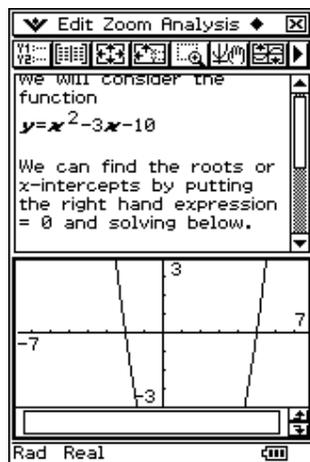
| Fig 16 | Fig 17 | Fig 18 | Fig 19 |

In your Eactivity below the Solve strip, type 'We will now graph the original function'. Insert a Graph strip as described for the Solve strip before (Fig 17). Highlight, drag and drop the original function into the graphing space (Fig 18). A parabola will be drawn (Fig 19). The view window can be altered easily using the Zoom menu.
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.

Geometry Link:

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.

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

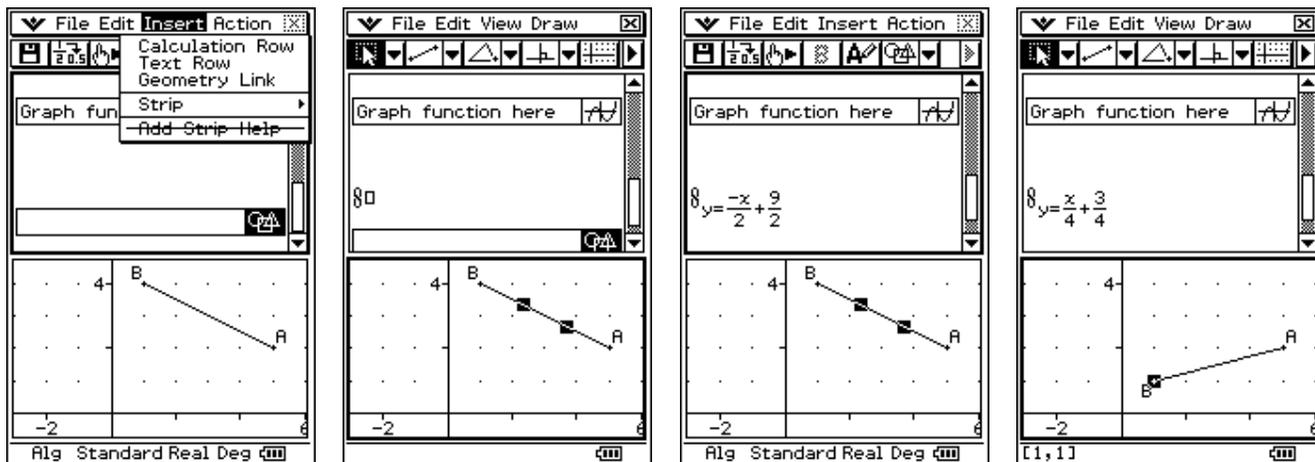e.g.   Insert a Geometry Strip in an Eactivity.

Plot the points A(5, 2) and B(1, 4), 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):

1. Find the roots of the parabola $y = 0.25x^2 + 3x + 5$
   In Eactivity, input the function.

   a)   Insert a Main strip - solve using 'Solve'
   b)   Insert a Graph Editor strip –   solve using 'Table'
                                         solve using 'Graph'

2. Find the inverse function for $y = 4x – 2$
   In Eactivity, input the function.

   a)   Insert Main strip -   invert (Interactive, Assistant, invert)
                                      -     then solve for y using 'Solve'
   b)   Insert Geometry strip   draw line using line segment tool, constrain
                                           draw y = x using line segment tool
                                           select reflection tool
                                             find equation

3. Find the intersection between the top half of $x^2 + y^2 = 4$ and the line $y = x – 1$.

   a)   Insert Main strip -   enter $x^2 + y^2 = 4$
                                  -     solve for y (choose +ve part)
                                  -     enter y = x – 1
                                  -     graph both and find intersection.
   b)   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.