

ClassPad 101

ClassPad 101

for ClassPad Version 3.04

Lesson A - Optional

Getting to Know Your ClassPad Handheld

Welcome

In this lesson, you will learn important features of the ClassPad handheld. Much of what you will learn is based on requests received from teachers. This is a slightly different lesson because you have already completed the entire course and will not be required to submit work. However, you will gain insight about your handheld and also a few features of the ClassPad Manager software.

Lesson Goals

- To be able to use the System application handheld features
- To be able to transfer eActivities and data to a ClassPad handheld
- To be able to add an add-in application to a ClassPad handheld
- To gain a clear understanding of the one finger button

In Lesson A, you will learn how to:

- Name your ClassPad
- Align your ClassPad
- Reset ClassPad memory
- Change font type
- Custom define shift keys
- Define a function
- Connect a ClassPad to the PC and transfer data
- Play an interesting and fun number game

Upon completion of this lesson, you will be able to answer the following:

1. Name two ways to realign your ClassPad handheld.
2. What key is used as the "shift key"?
3. How can you connect multiple ClassPads at once?
4. What is the file extension of an add-in application?

Time required





About 75 minutes.

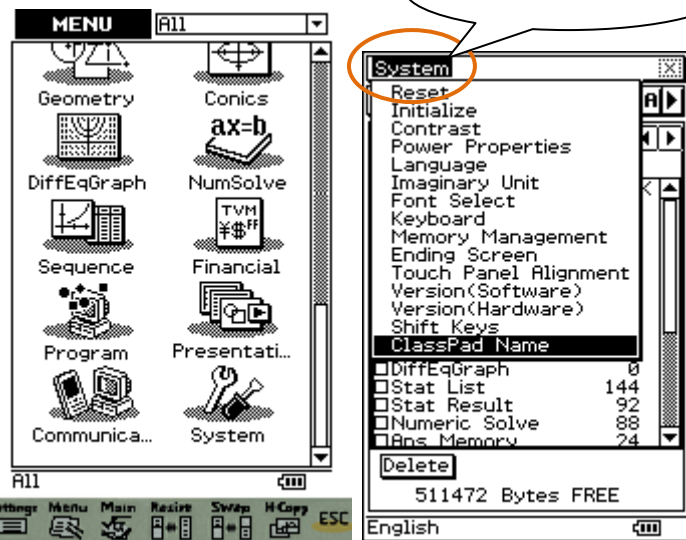
Getting Started

We will begin with a very quick introduction to the System application. Most of the information in the System application is related to memory use, but a few features are useful to know and will help you customize your ClassPad.

PART I

1. Naming your ClassPad Handheld

- Tap  on the **hard icon panel**
- Scroll down and tap 
- Tap **System** and select **ClassPad Name**
- Type in a name for your ClassPad and tap OK!
- Tap  to return to the main menu (your ClassPad's name will show just above the  icon)

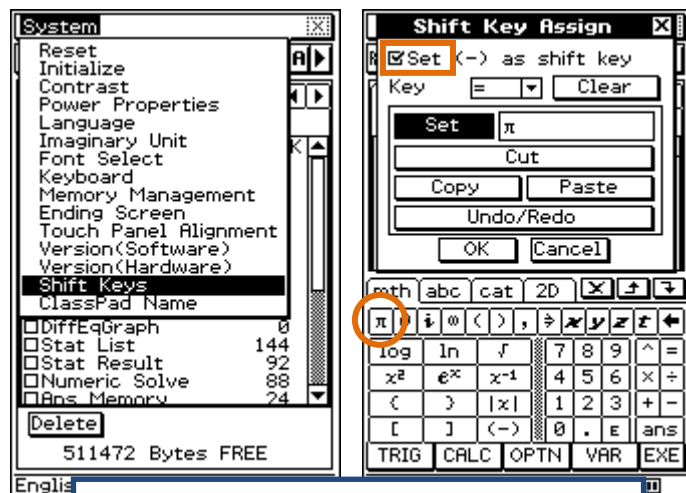


The "hard icon panel" is very useful on the handheld.

2. Defining Shift Keys

This is a very useful feature, especially if you are familiar with using a calculator with shift and alpha keys. You can custom design your shift keys to contain the keys you use from the soft keyboard most often.

- Open the System application again
- Tap **System** and select **Shift Keys**
- Important:** Check the **Set (-) as shift key** box
- Tap **Keyboard** and then tap the **math** tab
- Tap (place focus) to the right of **Set**
- Tap π on the soft keyboard
- Tap the **Set** button
To be continued...

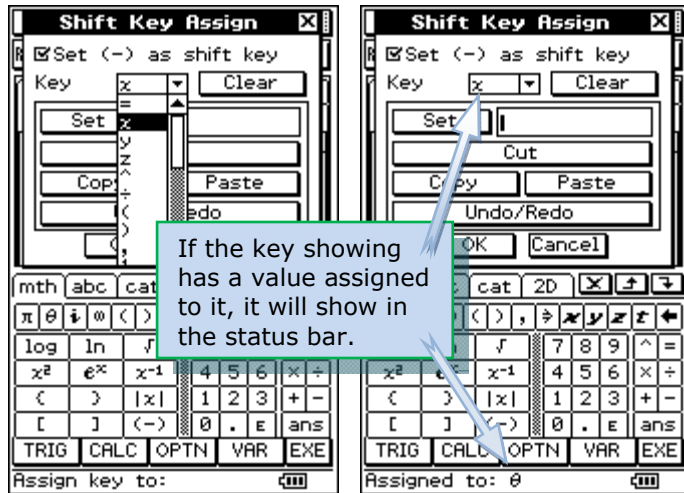


We just assigned π as the shift key for the = key ☺!


3. Defining Shift Keys (Continued)

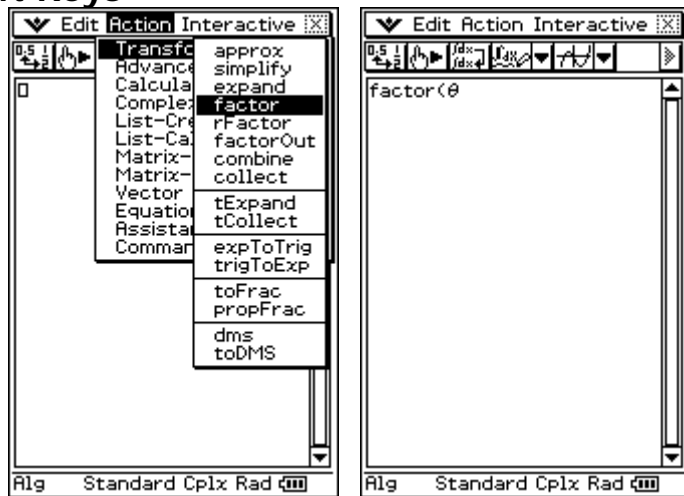
- We will assign θ to the x key
- Open the drop down list for **Key**
- Select x
- Tap (place focus) to the right of **Set**
- Tap θ on the soft keyboard
- Tap the **Set** button

****You can continue to assign more shift keys if you want to ☺****




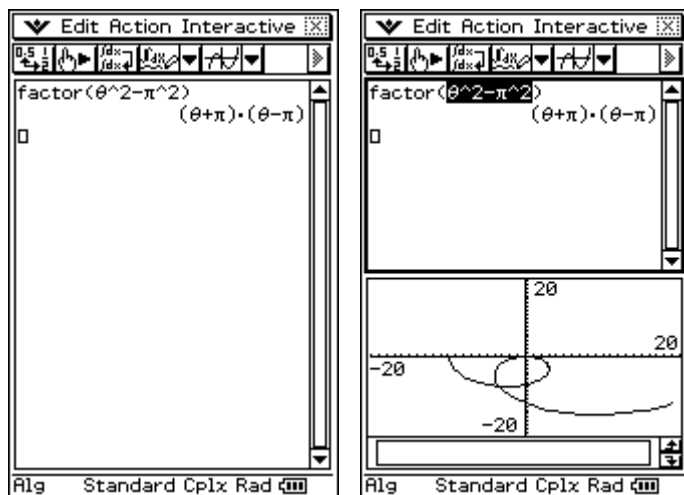
4. Using your Defined Shift Keys

- Tap  on the **hard icon panel**
- Select **Edit/Clear All**
- Tap **Action** and select **Transformation/factor**
- Press the $(-)$ key and then the (x) key (Should get θ)
- Press (\wedge) (2) $(-)$
- Press the $(-)$ key and then the $(=)$ key (Should get π)
- Press (\wedge) (2) $(=)$
- Press **(EXE)**









Fun with graphs...

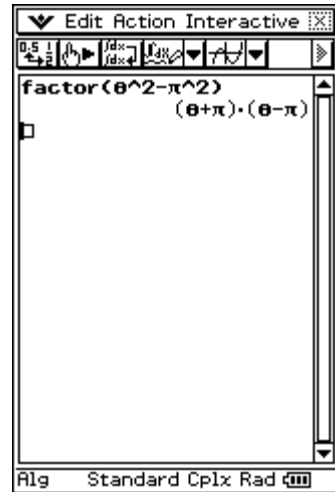
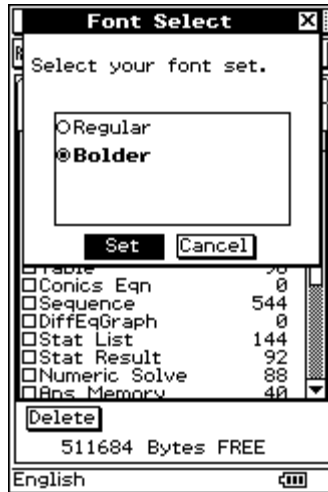
- Tap  to insert a Graph window
- Select $\theta^2 - \pi^2$ and drag to the graph window
- Press the $(-)$ key to zoom out



Optional but interesting: Tap the output and tap again to select just $(\theta - \pi)$ and drag to graph window. Select just $(\theta + \pi)$ and drag to graph window. Is there a visual relationship between the original graph and the graph of the factors?



5. Changing the Font Type

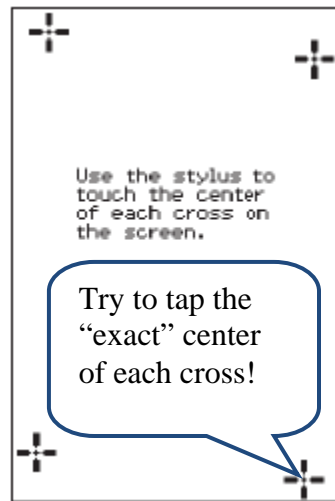
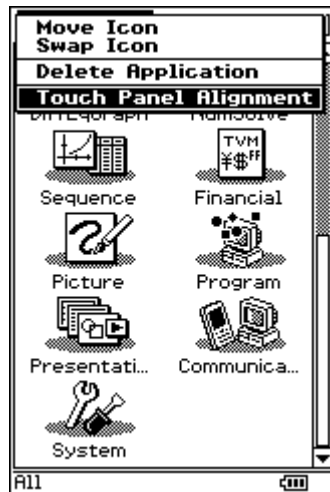
- Tap  and then .
- Tap the  toolbar button
- Select **Bolder** and then **Set**
- To see the font change, open 
 - * If you want to change the font style back:
- Return to .
- Tap  and set **Regular**




6. Aligning your Handheld

There are three ways to reach the alignment screen. I will show you the easiest way.

- Tap  on the *hard icon panel*
- Tap  on the *hard icon panel*
- Select **Touch Panel Alignment**
- Very carefully tap the center dot of each cross
 - *If your alignment is off, you will find it hard to select things and open menus. Realigning will fix the problem!



PART I Practice Exercises





- Please begin by opening the System application.
- Tap the  button to advance the toolbar. Can you find a toolbar button for realigning the ClassPad?
- Sometimes in engineering the letter j is used for the imaginary unit instead of i because the letter i is used for current. Open the System menu in the System application and select Imaginary Unit. A dialog will open allowing you to display the imaginary unit as j instead of i.
- Explore other System menu items...

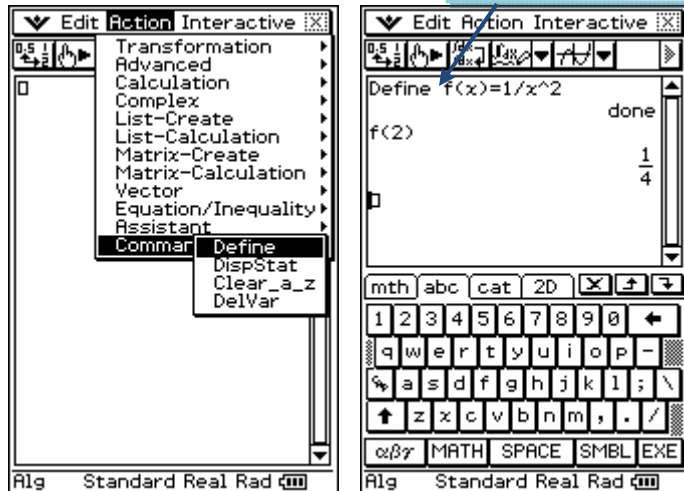
PART II

In this part, you will create data and an eActivity on your ClassPad handheld to work with in PART III.

Notice there is a space between Define and f(x)!


1. Defining a Function on your ClassPad Handheld


- Tap  on the **hard icon panel** and clear the window (if needed)
- Tap **Action**, then **Command** and select **Define** (or type Define)
- Press 
- Type in $f(x) = 1/x^2$
[Hint: ^ is a hard button]
- Press 
- Type in $f(2)$ and press  again

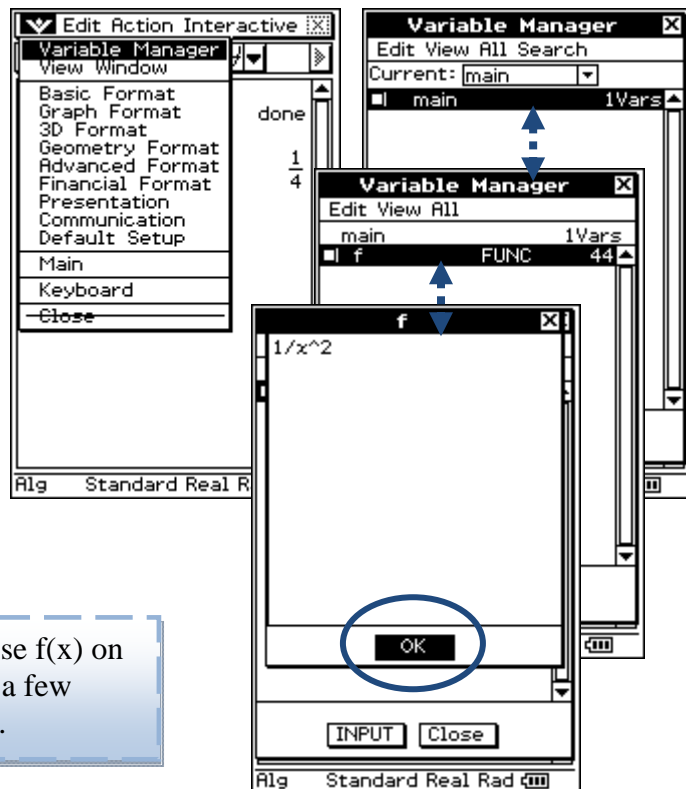


2. Where is f(x)?

$f(x)$ is stored in the MCS memory area. MCS stands for Memory Control System. Variables in MCS can be used in any application. For more information on MCS please see Lesson 14!

- Tap  (system menu) and select **Variable Manager**
- Tap **main** twice to open the **main** folder
- Tap **f** twice to see what it is defined to
- Tap **OK**
- Tap **Close** and **Close** again




*The  menu is very useful! All format dialogs can be found here. There is also an easy way to return to the default setup.

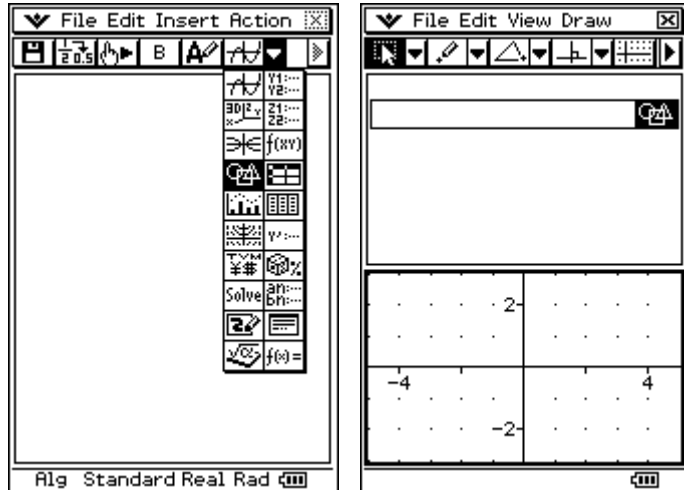


We will use $f(x)$ on the PC in a few minutes...


3. Creating an eActivity using the ClassPad Handheld

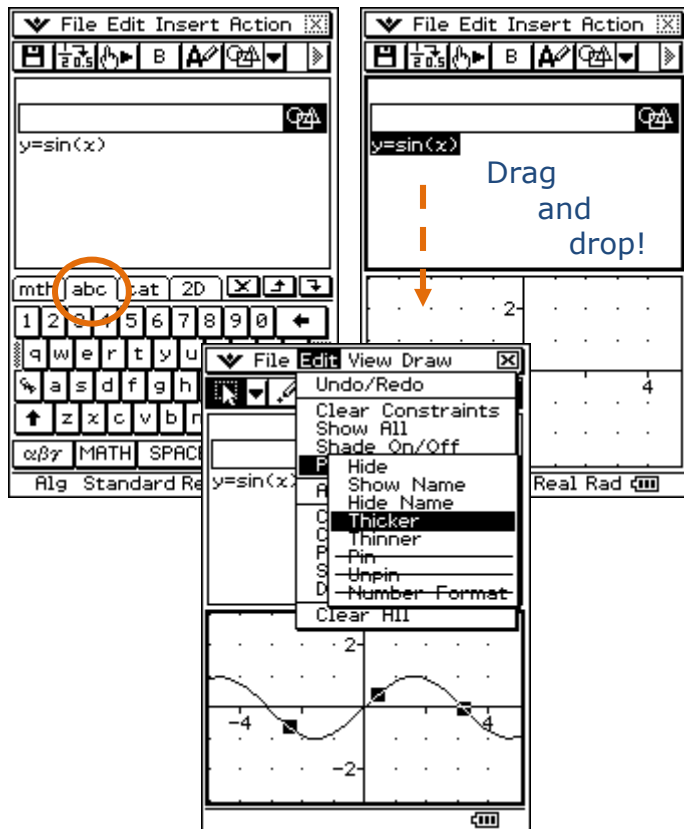
This will be a nice review of one of my favorite features, the Geometry Link. Once our eActivity is done, we will begin transferring data to the PC.

- Tap  and then 
- Clear the window if needed
- Press **(EXE)** twice (you will learn why later)
- Insert a Geometry strip
- Tap in Geometry to give it focus
- Tap the  button three times (axes, numbers and grid on)



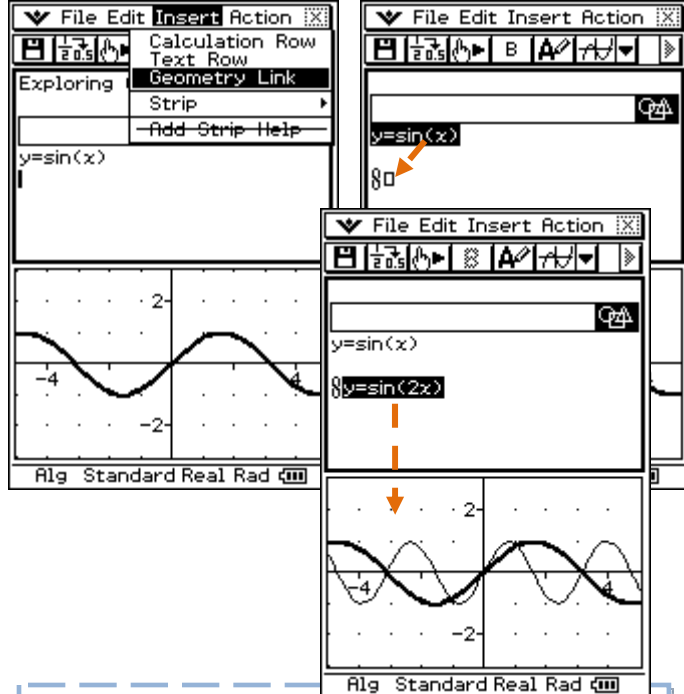
4. Creating an eActivity (Continued)

- Tap **below** the Geometry strip in eActivity
- Press **(Keyboard)**
- Type in $y=\sin(x)$
- Press **(Keyboard)** again
- Select $y=\sin(x)$, let go
- Press on selection and **drag** to the Geometry window (beautiful!)
- Tap the **sine curve** (you will see the  selection handles)
- Tap **Edit**, then **Properties** and select **Thicker**
- Tap in any white space to deselect the thickened curve (selection handles will disappear)



5. Creating an eActivity (Continued Again)

- Tap **below** the $y=\sin(x)$ in eActivity (you may need to press EXE)
- Tap **Insert** and then **Geometry Link**
- Select $y=\sin(x)$, let go
- Press on selection and drag to the box following the link symbol (silly 8)
- Next, change x to $2x$ (we want $y=\sin(2x)$)
- Select $y=\sin(2x)$; let go
- Press on selection and **drag** to the Geometry window
- Change $y=\sin(2x)$ to $y=\sin(2x)+1$
- Press EXE
- Select the **linked curve** in **Geometry** and drag it slightly (explore)



The bolded curve is not linked and so it will not update automatically. However, it is nice to have as a reference as the other moves!

If you move it by mistake, you can just delete its graph and drag and drop $y=\sin(x)$ again.

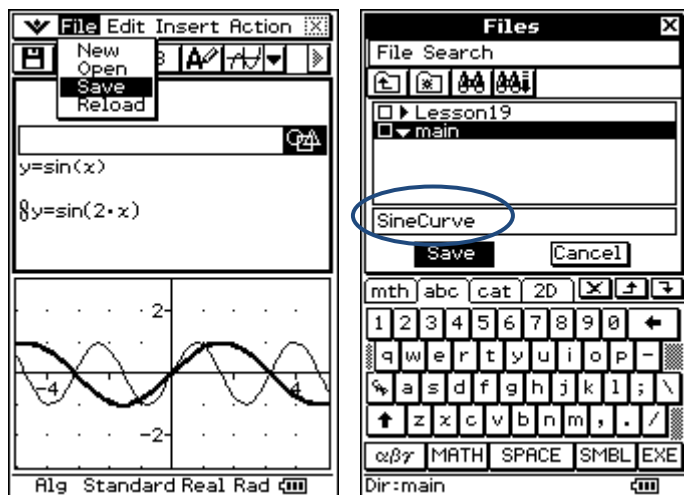
6. Saving your eActivity

- Tap in **eActivity** to give it focus (important)
- Tap **File** and then **Save**
- Select the **main** folder
- In the lower edit box, type in **SineCurve**
- Tap **Save**

No folders?

You can just type in SineCurve and tap Save. A main folder will be created by default.

Or, you can tap  to create a folder named main.



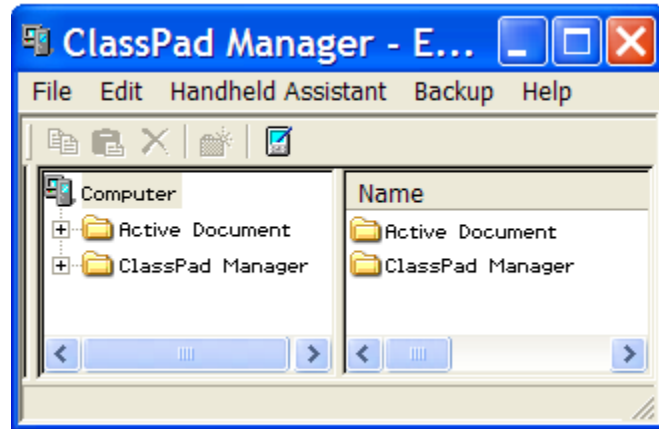
PART III

Since PART III is a continuation of PART II, we will skip a practice section for PART II. In this part, you will transfer the data you just created to your PC, modify it, and then transfer it back.

1. At Long Last...Connecting your Handheld

You will need your ClassPad handheld and the USB cable it came with. If you cannot find the USB cable, any generic USB cable should work. I have used one from a digital camera before.

- Open your ClassPad Manager software
- Right click** anywhere on the ClassPad Manager
- Select **Exchange Window**
- Connect the USB cable to your computer (PC)
- Turn your ClassPad handheld on
- Connect it to the other end of the USB cable



*If this is the first time you connected the ClassPad, a **New Hardware Found** dialog will appear.

Click **next** to the first dialog.

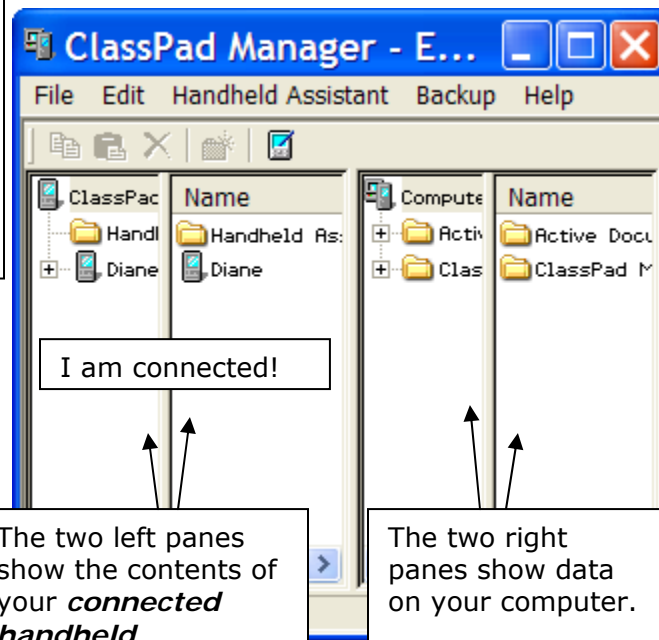
Very Important: Click **Continue Anyway** to the second dialog.

- If your ClassPad is not named, a Rename dialog will appear. Give your ClassPad a name and continue!
- Once connected, you will see four window panes.



Having trouble?

If you do not see four panes, you are most likely not connected! Please see "**Trouble connecting?**" on the next page.



The two left panes show the contents of your **connected handheld**.

You can drag and drop data or eActivities from the handheld side to the PC side or PC side to handheld side.



The two right panes show data on your computer.

The data in the **Active Document** folder is what is in your current ClassPad Manager.

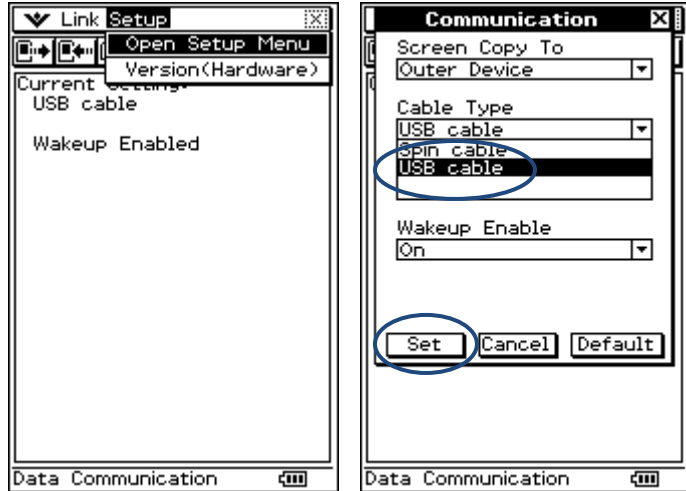
Trouble connecting?

As soon as you connect your handheld, it should go into the "Standby" state. A dialog will appear that says "Standby".

If the "Standby" dialog does not appear, please check to make sure your handheld is set to the USB cable type as follows:


- On your handheld, tap  and then  and then
- Tap **Setup** and then **Open Setup Menu**
- For **Cable Type** select **USB cable**
- Tap **Set**
- On your computer, open the Exchange Window and try connecting again


*The 3pin cable type is used to connect one handheld to another handheld.



2. Transferring Data and eActivities from a Handheld to the PC

Important: The trick in transferring data is in the cursor! As you drag data (files, folders or ClassPad icons), the cursor will change:

 means the data will not be copied if you let go.

 means the data will be copied when you let go.

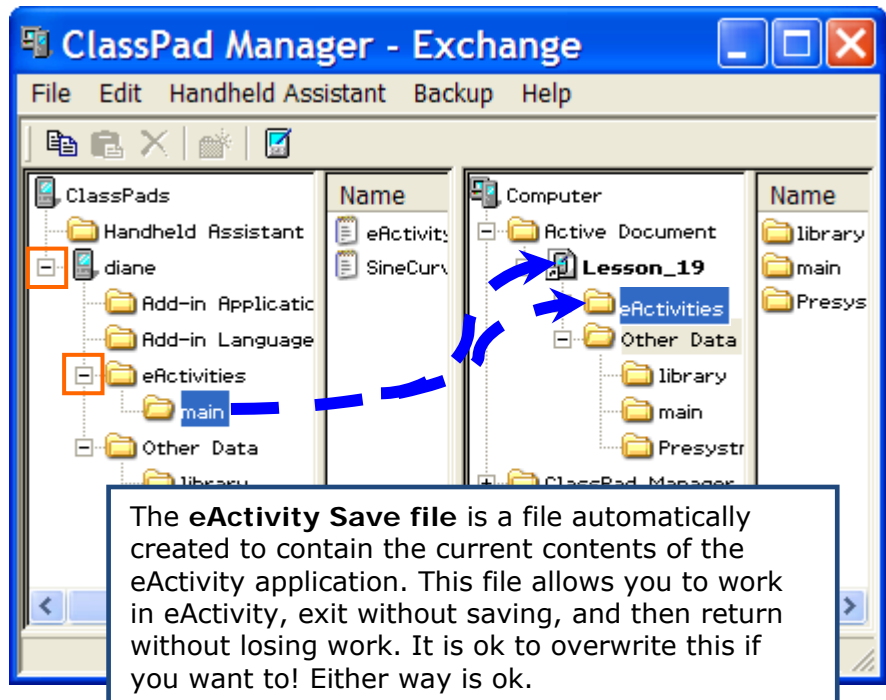
To copy **f(x)** to your PC:

- Expand your handheld icon
- Locate **f** in the **Other Data's main folder**
- Expand the PC's **Active Document** folder
- Drag and drop **f** to the **Other Data's main folder** on the PC side




To copy eActivities
main folder to
your PC:

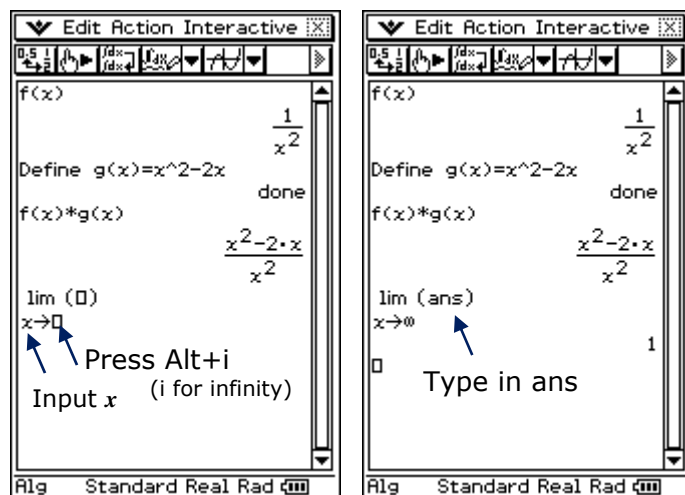
- Locate the **main folder** in your handheld's eActivities folder
- Drag and drop the **main folder** onto the PC's eActivities folder
- Or, drag it to the bolded filename (a folder contains enough info for the ClassPad to know where to copy it)



3. Using f(x) with the ClassPad Manager to Explore Limits

Please close the Exchange Window to return to the ClassPad Manager software and unplug your handheld. The following example is longer than intended, but it shows you how to combine features of the ClassPad in a way that I think is exciting. I really hope you enjoy the activity!


- Tap  on the **hard icon panel** and clear the window (if needed)
- Type in **f(x)**; press Enter
- Type in:
Define g(x)=x^2-2x
- Press Enter
- Type in **f(x)*g(x)**
- Press Enter
- Press **Ctrl+Shift+L**
- Type **x** in the small front box to get $x \rightarrow \square$
- Tap in the small box following $x \rightarrow \square$
- Press **Alt + i**
- Tap in the medium box following $\lim(\square)$
- Type in **ans**
- Press Enter!



Ctrl+Shift+L produces $\lim_{x \rightarrow \square}$; Or, you can find it on the 2D page of the keyboard.

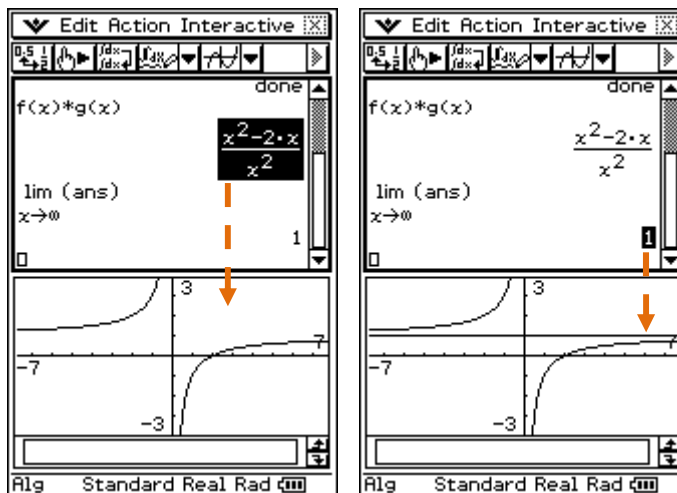
Alt + i produces ∞ ; Or, you can find it on the mth page of the keyboard.

4. Exploring the Limit


- Tap  on the toolbar to insert a Graph window
- Tap the output for $f(x)*g(x)$ to select it
- Press on selection and drag to the graph window
- Select 1 (output for limit)
- Press on selection and drag to the graph window

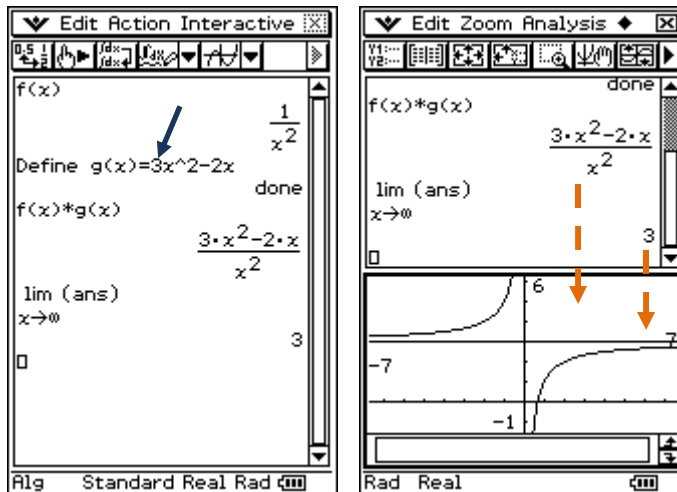
If you want to...

- Press $\text{Ctrl}+\text{r}$ to resize the graph window
- Press $+$ to zoom in
- Press $-$ to zoom out



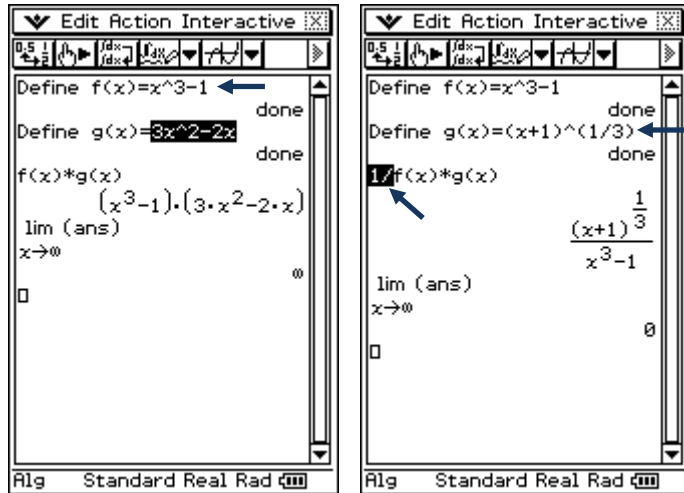
5. Exploring the Limit (Continued)

- Tap in the Graph window to give it focus
- Tap the small  in the upper right corner to close the Graph window
- Change $g(x)$ to $3x^2-2x$
- Press Enter
- Insert a Graph window
- Graph $f(x)*g(x)$ again
- Graph the limit again
- Press the **up arrow** on our PC keyboard or the ClassPad's cursor pad to pan the window quickly



6. Redefining f(x)

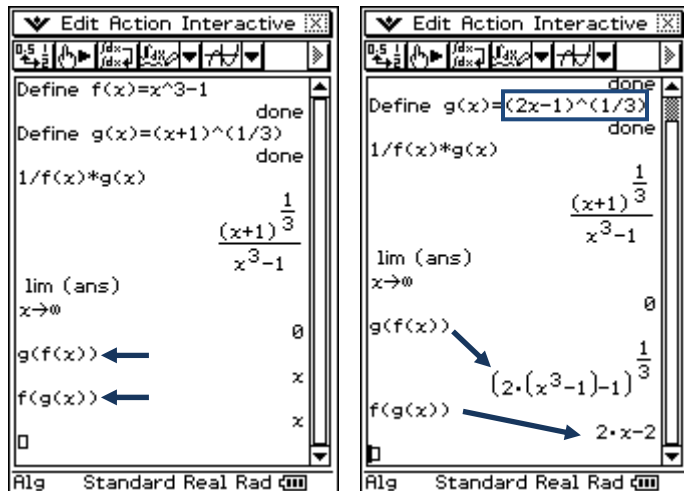
- Please **close** the Graph window.
- Select **f(x)**
(we will type over it)
- Type in:
Define f(x)=x^3-1
- Press Enter
- Change **g(x)** to
(x+1)^(1/3)
- Press Enter
- Tap in front of f(x)
- Input **1/** to change
f(x)*g(x) to 1/f(x)*g(x)
- Press Enter again



7. The One Finger Button

You may recall learning about the “one finger” button in Lesson 2. Lesson 2 does not really show how great this button is, so I will try again!

- Below the line with
lim(ans), type in **g(f(x))**
- Press Enter or tap
- On the next line, type in
f(g(x))
- Press Enter or tap
- Near the top, change
g(x) to **(2x-1)^(1/3)**
- Tap (Important)
- Tap the line containing
g(f(x))
- Tap the button
- Tap the line containing
f(g(x))
- Press Enter or tap





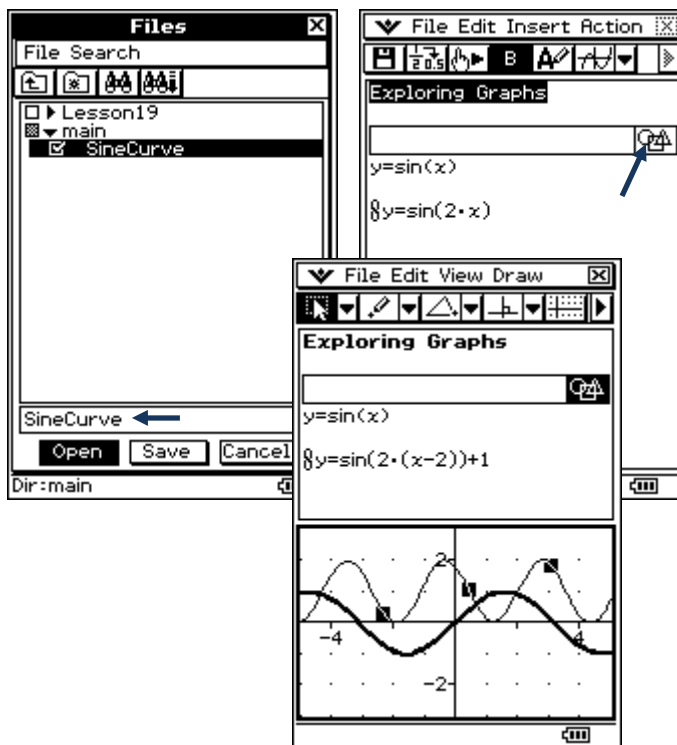
The usefulness of the button is that you can tap on any line and re-execute without re-executing everything!

The button is sometimes called the “one line at a time” button and is an *awesome* button!

8. Adding text to the SineCurve eActivity

You may have noticed that typing from the PC keyboard is a bit easier than typing from the ClassPad's soft keyboard. If you begin an eActivity on the handheld, you can easily transfer it to the handheld, modify it, and then transfer it back.

- Tap  and then 
- Tap **File** and then **Open**
- Expand the **main** folder
- Select **SineCurve**
- Tap **Open**
- Type in **Exploring Graphs**
- Select your text and make it bold (tap the B button or press Ctrl+b)
- Expand the Geometry strip and modify your graph
- Tap in the eActivity window
- Tap **File** and then **Save**
- Save your changes



PART III Practice Exercises

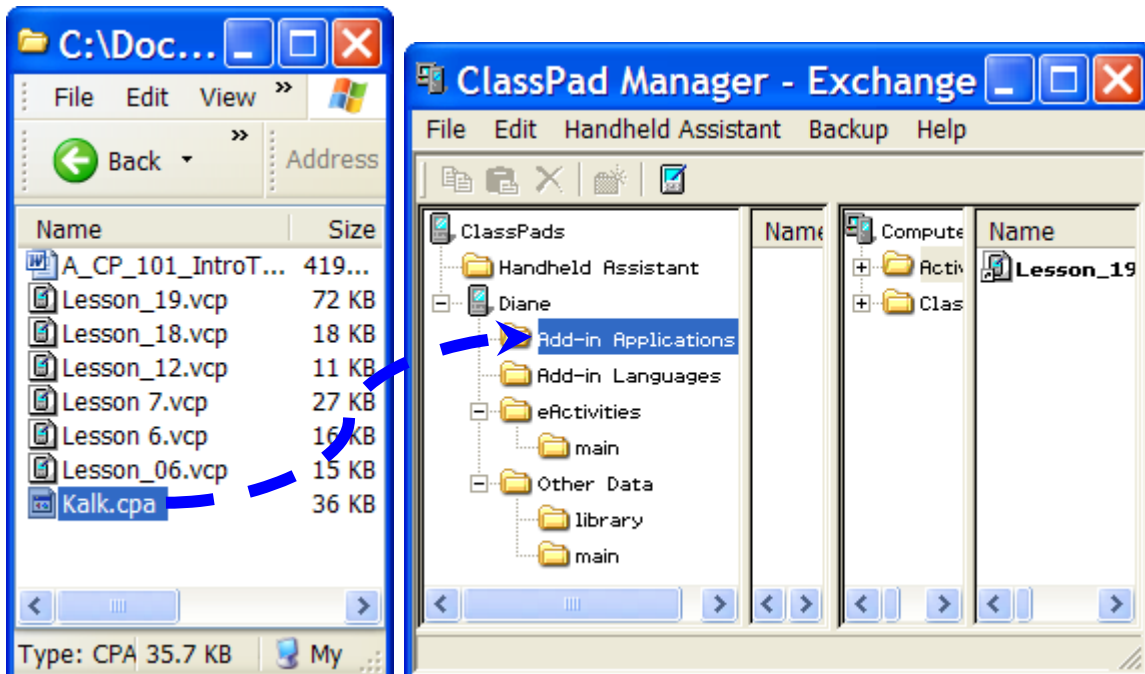
- Please begin by opening the Exchange Window and connecting your handheld.
- To see all the work you did in the main application on the handheld, drag and drop the Other Data folder in your active file (PC side) to your handheld icon. This folder contains all the data that is not in eActivity. You can overwrite all or select what to overwrite.
- Try to transfer to PC side's SineCurve to your handheld. Remember, the cursor will change to a + when you can copy ☺.
- Unplug your ClassPad and check the main application and eActivity. Did the data transfer successfully?
- If you have more than one ClassPad, you can connect them at the same time using a USB hub or multiple USB ports on your PC.
- In case you are wondering... The Handheld Assistant folder is useful if you need to copy the same data to multiple handhelds. When you drag and drop data to this folder, it will automatically copy the data to each ClassPad you connect until you close the assistant.

PART IV


In this part, we will transfer an add-in application to your handheld! Add-in applications are applications made with a SDK (Software Development Kit). ClassPad add-in file names end with **.cpa**. Add-ins are usually made by individuals who enjoy programming and enjoy the ClassPad. There are many add-ins available on the web for you to download if you are interested.

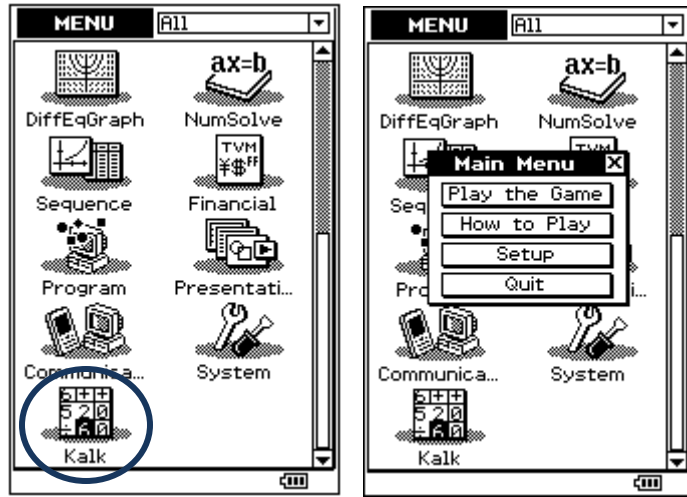
Today, I will share with you an add-in named **kalk.cpa** or "**kalk**" for short. "**kalk**" is a fun number game, written by Dmitri Salcedo, a young and talented software engineer.

1. *Let's get started:* Downloading the ClassPad Add-In file (cpa file)
 - o Click **Kalk.cpa**
 - o Choose the **Save** or **Save As...** option
 - o Select a place to save to
 - o Click **Save**
 - o **Important:** Click **Open Folder**
2. Open the **Exchange Window**
3. **Connect** your handheld using the USB cable.
4. **Important:** Position the Exchange Window and window containing **kalk.cpa** so that they both show.
5. Drag and drop **kalk.cpa** onto your handheld's **Add-in Applications** folder.
6. Unplug your handheld.





7. Getting Ready to Play *Kalk*

- Tap  on the **hard icon panel** and locate *Kalk*
- Select **How to Play** (nicely written help)
- Select **Play the Game**



8. Playing *Kalk*

- Tap a connecting expression using $+$, $-$, \times or \div .
Possible Forms:
 $\# + \#$
 $\# - \#$
 $\# \times \#$
 $\# \div \#$
- Tap the  button to add an $=$ (the button changes to Done)
- Tap an answer (the answer must touch the 2nd operand of your expression)
- Tap the  button! (If correct, you are given points)
- Repeat steps a-d!

PART IV

Practice Exercises

1. Play *Kalk* again.

2. What does the Swap button do?

[Hint: Read *How to Play* from the menu that appears when you open *Kalk*. I just learned about this button and it is useful!]

3. Which operation (+, -, x or ÷) gives the most points?

Enjoy exploring mathematics with the ClassPad and refreshing your basic arithmetic skills playing *kalk*!