**TI-Nspire Skill Builder – Converting Fractions to Decimals**

**Insert a Calculator page:**
Press `ctrl` + `1` and choose Add Calculator.

Use the Quadratic Formula to solve $f(x) = 6x^2 + x - 2$ on the Calculator page. TI-Nspire defaults to a fraction result. Copy and paste the expression by using the up arrow on the Touchpad (`£`) to highlight, then press `enter`.

**Method #1:** Do you see the small `Þ` (approximate) symbol above the `enter` key? Activate the approximate command by pressing `/·`.
**Method #2:** Insert a decimal point `^` in the expression.

Copy and paste the expression and edit the expression to find the other root.
**Method #3:** Position the cursor after the expression and press **Menu > Number > Convert to Decimal.**

**Method #4:** Find the Approximate command in the Catalog. Press `A`, then press `A` to locate the commands that begin with A (make sure you are in tab #1). Use the Touchpad arrows to locate the command, press `enter` to choose `approx()`, then copy and paste the expression.

**Method #5:** Type `approx(` using the alpha letters on the keypad (`APPROX(`), then copy and paste the expression. Notice the letters are in italics until the full command has been entered.
Insert a Geometry page:
Press \text{ctrl} \text{J} and choose Add Geometry.
To construct a triangle, press \text{Menu} > \text{Shapes} > \text{Triangle}.
Hover over the Triangle icon in the upper left corner to read the Tool Tip.
Click in three locations on the screen to construct the triangle.
Press \text{esc} to exit the Triangle tool.

Grab a point using Method #1:
Hover over the point until you see the word \text{point} appear. Press and hold \text{R} for one second. The hand becomes closed over the point. Move the Touchpad as desired to move the point. Press \text{esc} to drop the point at the desired location.

Hover over the point until you see the word \text{point} appear. Press \text{tab} if you want to use the object underneath the point (in this case, the triangle).
Grab a point using Method #2:
Press \text{ctrl} \text{R} to close the hand and grab the point.

Once the point is grabbed, you can move the point by using the arrow keys \text{	extarrow} on the Touchpad. Alternatively, you can swipe your finger across the Touchpad to move the point more quickly. Press \text{esc} to let go of the point.

Try moving the whole triangle by grabbing one of its segments.
**TI-Nspire Skill Builder – Finding Points of Interest**

**Start a New Document:**
Press `Ctrl` on and choose **New Document**. You are prompted with the question, “Do you want to save?” Say No by pressing `tab` to advance to the next field; then press `enter` or `←` to make the selection. Choose **Add Graphs**.

Graph the function
\[ f_1(x) = x^4 + x^3 - 4x^2 + 4 \, . \]
**Method #1:** Open the Trace tool by pressing `Menu > Trace > Graph Trace`. Use the ◀ ◆ arrows on the Touchpad to find the local min, max, and zeros of the function. It is common for new users to try (unsuccessfully) to use the £ ¤ keys to operate the Trace tool. Only use the left and right arrow keys!

Hover over the Graph Trace icon in the top left corner of the screen. The Tool Tip explains how to use the tool. While in Trace mode, type a number to “jump” to that value of x on the graph.

**Method #2:** While the Trace tool is open, drop a point on the graph by pressing `enter`. Grab (ctrl ←) and move the point to locate the zero. Hover over the x-coordinate of the point and press `+` or `-` repeatedly to see more (or fewer) decimal places displayed.

**Method #3:** Open the Analyze tool by pressing `Menu > Analyze Graph > Minimum`. Click (●) to mark the lower bound of the search region, use the Touchpad arrows (◀ →) to move, and press `enter` to identify the interval in which to display the minimum.
### TI-Nspire Skill Builder – Using a Table

**Start a New Document:**
Press **on** and choose New Document. You are prompted with the question, "Do you want to save?" Say No by pressing **tab** to advance to the next field; then press **enter** or **r** to make the selection. Choose Add Graphs.

Graph the function: \( f_1(x) = x^2 - 2 \)
*Method #1:* Press **ctrl T** to insert a table.
*Method #2:* Press Menu > View > Show Table.

To edit the table settings, press Menu > Table > Edit Table Settings. Change the Table Start to 1.2 and the Table Step to 0.1 to find the roots of the function numerically.

Change the table settings so that you can type in any x-value you wish. Press Menu > Table > Edit Table Settings. Change the Independent variable to Ask.

Removing a table can be tricky.
*Method #1:* If you just added the table, then press **ctrl esc** or **ctrl Z** to undo the last action and remove the table.
*Method #2:* Use the Touchpad to move to the Graphs application, press **x**, and then press **ctrl T** to remove the table.

Graph the function \( f_2(x) = x - 2 \). Press **ctrl I** and add a Lists & Spreadsheet page. To see the table for multiple functions, press **ctrl T**, choose the function, and then press **p** to navigate to the next column and choose another function.
TI-Nspire Skill Builder – Graph a Scatter Plot

Start a New Document:
Press \[\text{on}\] and choose New Document. You are prompted with the question, “Do you want to save?” Say No by pressing \[\text{tab}\] to advance to the next field; press \[\text{or } \text{to make the selection. Choose Add Lists & Spreadsheet.}\n
You must name your lists (which many users forget).
Name the lists \(xc\) and \(yc\) (for x and y-coordinates). Enter \{15,20,25,30,35\} in list \(xc\) and \{70,76,84,91,100\} in list \(yc\).

Method #1: To select both columns, move your cursor over the A at the top of the column and press \[\text{or } \text{. Then hold } \text{ and press } \text{ to highlight both column B as well. (Alternatively, press } \text{ until column A is highlighted, then hold } \text{ and press } \text{ to highlight column B as well,) Right-click } \text{ and choose Quick Graph.}\n
Method #2: Press \[\text{doc}\] > Insert > Data & Statistics. Click \[\text{near the bottom of the screen where it says, “Click to add variable” and choose } \text{. Move your cursor to the left side of the screen, click \[\text{, and choose } \text{.}\n
Method #3: Press \[\text{and choose Add Graphs. Press Menu > Graph Type > Scatter Plot. Press } \text{ and choose } \text{ for the x list and } \text{ for the y list. Press } \text{ to graph the scatter plot.}\n
What? You can’t see your graph?
Press Menu > Window/Zoom > Zoom Data.
Since a Graphs page does not automatically keep the axes in view, you may want to grab the axes and move toward the origin to zoom out.
One way to access the Settings is to click (✓) on the battery/tool icon in the top right corner of the screen. Choosing **Status** shows a screen containing the version of your Operating System, as well as information about your battery life and available memory.

Another way to access the Settings is to press **on** > **Settings**. To change the Calculator Settings, choose **Settings > General**. Use the **tab** key to navigate to the next field (like a computer). Click (✓) or press ◄ to make a change to one of the settings.

**Warning!** If you click the **OK** button, the settings of your Scratchpad will not change! However, if you **tab** down to **Make Default**, you will receive a prompt asking if you want to apply the setting changes to the Scratchpad. Click OK to do so.

Sometimes there is some confusion about the Display Digits setting. The **Fix 2** command will automatically show two decimal places of any expression with a decimal. Use this setting when you are working with money problems and want to include cents in the result.

In contrast, the **Float 2** command will show at most two digits of any expression that contains a decimal. Press **on** > **Settings** > **Settings** > **Graphs & Geometry** to open the settings for a Graphs or Geometry application.

Press **doc** > **Settings & Status** > **Handheld Setup**. You can also click (✓) the triangle next to the document name at the top of the page to open the Documents menu. Use the Handheld Setup menu to change the Font Size and adjust the Power settings of your handheld.
Start a New Document:
Press and choose New Document. You are prompted with the question, "Do you want to save?" Say No by pressing to advance to the next field and then or to make the selection. Choose Add Lists & Spreadsheet.

Name column A first_period. Populate the list with the following test scores: {71, 83, 80, 95, 77, 98, 65, 86, 77, 83, 83, 89, 95, 72, 83}. Resize the column by grabbing near the top of the screen in between columns A and B (look for the + symbol).

Press Menu > Data > Quick Graph to create a Dot Plot of the data. Right-click ( ) and choose Box Plot (or Histogram if you prefer). Press and Add Lists & Spreadsheet.

Title the first list school {fresh, soph, junior, senior} and title the second list number {680, 455, 534, 523}. Press Menu > Data > Summary Chart and configure the dialog box as shown. Right-click ( ) and choose Pie Chart.

Press and Add Lists & Spreadsheet. Title the first list lunch {turkey, salad, pb_j, ham}. Title the second list boys {30, 4, 15, 19}. Title the third list girls {15, 28, 8, 20}. Press and Add Data & Statistics. Click near the bottom of the page and choose lunch.

Add Y Summary List by right-clicking ( ) in the box on the left and choose boys. Repeat (or press Menu > Plot Properties > Add Y Summary List) and choose girls. Change the color of the bars by right-clicking and choosing Color > Fill Color.
Start a New Document:
Press  \(\text{Ctrl} + \text{A} \) > New Document > Add Graphs. Graph the function: \(f(x) = x\).
Hover the cursor over the function until you see \(\times\) or \(\odot\) and press \(\text{Ctrl} + \text{A}\). Use the Touchpad arrow keys to transform the function.

Press \(\text{Ctrl} + 1\) and choose Add Lists & Spreadsheet. Title the first list \(x_c\) \{5, 10, 15, 20, 25\}. Title the second list \(y_c\) \{15, 44, 60, 74, 105\}. Press \(\text{Doc} \rightarrow \text{Insert} \rightarrow \text{Data & Statistics}\). Choose \(x_c\) and \(y_c\) in the boxes where it says, “Click to add variable”. Press Menu > Analyze > Add Movable Line.

If you grab (\(\text{Ctrl} + \text{S}\)) the movable line near the center of the line, you can translate it horizontally or vertically. Grab near either end to change its slope. Click on the movable line and press \(\text{Del}\) to get rid of it. Press Menu > Analyze > Regression > Show Linear\((mx+b)\).

Press Menu > Analyze > Residuals > Show Residual Squares.
To show the residual plot, press Menu > Analyze > Residuals > Plot Residuals.
Note: You cannot calculate a regression on a Graphs page.

Press \(\text{Ctrl} + 1\) and Add Calculator. To perform a regression on a Calculator page, press Menu > Statistics > Stat Calculations > Linear Regression\((mx+b)\). Configure the dialog box as shown. Notice that the regression will be stored in \(f_2\).

Press \(\text{Ctrl} + 1\) and Add Lists & Spreadsheet. Press Menu > Statistics > Stat Calculations > Linear Regression\((mx+b)\). Press \(\text{Ctrl} + 1\) and Add Notes. Press \(\text{Ctrl} + M\) to open a Math Box. Press Menu > Calculations > Statistics >Stat Calculations > Linear Regression\((mx+b)\).
**Insert a Geometry page:**
Press `ctrl`+`I` and choose Add Geometry. Press Menu > Shapes > Triangle. Click (определить) to drop a point then type A to label the first vertex of the triangle. Click to drop another point and type B, then click to drop a final point and press C.

To measure the lengths of the sides, press Menu > Measurement > Length. Hover over the Length icon to see the Tool Tip. Hover over a side of the triangle, press `tab` until the word side appears, click once to measure, and click again to drop the measurement on the page.

Construct an altitude in the triangle. Press Menu > Construction > Perpendicular. Click on point C and segment AB. Measure the right angle by pressing Menu > Measurement > Angle. Click the three points that form the angle, choosing the vertex second.

To insert an Analytic Window, press Menu > View > Analytic Window. Hover over the end of an axis, press `tab` until the word axes appears. Grab (реконструировать) the end of the axis and use the Touchpad to resize the Analytic Window.

Show the grid by pressing Menu > View > Show Grid. Place a point on the grid by pressing Menu > Point On. Click twice to drop a point on the grid. Hide the grid by pressing Menu > View > Hide Grid.

To insert a Geometry page, press `ctrl`+`I` and choose Add Geometry. Construct a circle with radius 4. First, right-click (реконструировать), choose Text, type 4, and then press `enter`. Press Menu > Shapes > Circle. Click on the 4, then click again to place the circle.
Insert a Calculator page:
Press \[ \text{ctrl} \text{I} \] and choose Add Calculator.

Press \[ \text{ctrl} \text{C} \] to open the Catalog. Press \[ 1 \] to access the commands. If you want to use the Factor command, press \[ F \] to jump to the commands that begin with the letter F. Press [enter] to select the command that is highlighted.

Some commands are difficult to remember how to use. Open the Catalog and locate the polyRoots command. Notice the syntax for the command at the bottom of the screen. Check the Wizards On box and click the chevron to see expanded syntax.

Press \[ 2 \] or click the second tab to access the commands organized by topic. This part of the Catalog if you know the general topic of a command but forget the name of the command. Click on the topic to expand and see which commands are available.

Press \[ 3 \] or click the third tab to access the Symbol palette. You can also access the Symbol palette by pressing \[ \text{ctrl} \text{C} \] on the keypad. There are 543 symbols. You may notice that using the catalog to access the symbols allows you to see more symbols at one time.

Press \[ 4 \] or click the fourth tab to access the Math templates. You can also access the Math templates by pressing \[ \text{t} \]. The advantage of using the Catalog is that the template name appears near the bottom of the screen.
**TI-Nspire Skill Builder – Adjusting the Window**

**Insert a Graphs page:**
Press \( \text{ctrl} \) and choose Add Graphs.

Graph the function \( f_1(x) = (x - 2) \cdot (x + 10) \).
Notice that you cannot see the whole parabola. Place your cursor in an open spot and grab \((\text{ctrl} \ \square)\) the screen.

Method #1: Use the Touchpad to move the entire coordinate plane.

Method #2: Move your cursor over the axis until the word axes appears. Grab the axis \((\text{ctrl} \ \square)\) and use your Touchpad to zoom out by dragging your hand towards the origin.

You can change the scale on only one axis by holding down the \([\text{shift}]\) key as you drag the axis.

Method #3: Double click on the end-values and change them. When you press \(\text{enter}\) the changes will be reflected in the graphing window.

If you want to change more than one of the end values, then after you change one (but before you press \(\text{enter}\)), press \([\text{tab}]\) to cycle to the next end-value in a clockwise direction.

Method #4: Press Menu > Window/Zoom > Window Settings and adjust as desired.
Method #5: Use a Zoom feature. Press Menu > Window/Zoom > Zoom Fit.
### TI-Nspire Skill Builder – Managing Pages in a Document

<table>
<thead>
<tr>
<th>Insert a Graphs page:</th>
<th>Press $\text{ctrl} + I$ and choose Add Graphs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insert a Geometry page:</td>
<td>Press $\text{ctrl} + I$ and choose Add Geometry.</td>
</tr>
<tr>
<td>Insert a Lists &amp; Spreadsheet page:</td>
<td>Press $\text{ctrl} + I$ and choose Add Lists &amp; Spreadsheet.</td>
</tr>
</tbody>
</table>

| Access the Page Sorter view by pressing $\text{ctrl} + \uparrow$. | This is a thumbnail view of the screens. You can change the order of the screens by grabbing a page ($\text{ctrl} + \mathbb{2}$) and using your Touchpad to move it. |

| You can copy ($\text{ctrl} + C$), cut ($\text{ctrl} + X$), paste ($\text{ctrl} + V$), and even delete ($\text{del}$) pages in this view. | Click on the thumbnail and use the shortcut keystrokes to edit as desired. |

| To copy and paste a whole problem, click on the Problem 1 label, press $\text{ctrl} + C$ to copy, and then $\text{ctrl} + V$ to paste. | Delete an entire problem by clicking on the Problem label and pressing $\text{del}$. |

| Click on a Graphs page thumbnail and enter $f_1(x) = x^2$. | To split the screen, press $\text{doc} \rightarrow \text{Page Layout} \rightarrow \text{Select Layout} \rightarrow \text{Layout #2}$. Then, move your cursor to the screen on the right, press $\text{Menu} \rightarrow \text{Add Notes}$. |

| Press $\text{doc} \rightarrow \text{Page Layout} \rightarrow \text{Custom Split}$. | Use your Touchpad to adjust the size of the split screen. Try using the Ungroup tool to separate the split screen into two separate pages. Press $\text{doc} \rightarrow \text{Page Layout} \rightarrow \text{Ungroup}$ (alternatively, press $\text{ctrl} + \mathbb{6}$). |
Check the Operating System (OS) by pressing **Menu > Settings > Status**. In addition to the OS, notice the battery status, available memory and information regarding TI-Nspire Navigator status.

You can transfer an OS from one handheld to another. On the sending handheld, press **on > My Documents**. Then press **Menu > Send OS**.

You can set your TI-Nspire Teacher Software to automatically check for handheld updates. On the software, click Help and choose Check for Handheld OS Update. Click the box if you want to Automatically check for updates. When you connect your handheld to your computer, it will automatically check for updates to the OS.

You can also use your TI-Nspire Teacher Software to send out the OS to more than one handheld at once. Under the Content tab, Click the **Send selected to** icon and choose **Send to Selected Handhelds**. Locate the OS on your computer and send it.

To download the latest handheld OS, go to [education.ti.com](http://education.ti.com).