Things to know about your calculator   NAME:
(Texas Instruments - 82, 83, 85, 86)

This worksheet introduces items that will help you in the general use of your calculator. You are expected to follow the worksheet on your calculator.

Screen brightness / Battery life:
If you press the **2nd** button and then the **UP** or **DOWN arrow**, the writing on the screen will get darker or lighter. When you do this, a little number appears in the upper right corner. When this number gets to nine, it's time to switch the AAA batteries.

There are two kinds of batteries in your calculator, the four AAA batteries and the little watch battery. If the watch battery is good, changing the AAA batteries will not erase your memory including programs you have stored. If, after you replace the AAA batteries, the memory has cleared, you'll need to replace the watch battery. You can do so at a department store.

2nd ENTRY:

Let's say we want to find the values of $\dfrac{4 \pm \sqrt{23}}{7}$. Recall this notation means both

$\dfrac{4 + \sqrt{23}}{7}$ and $\dfrac{4 - \sqrt{23}}{7}$. Enter the first expression into the calculator as one long entry. It should look like $\left(4 + \sqrt{\ }(23)\right)/7$. Notice the set of parentheses around the numerator. On the **TI-83**, the first parenthesis after the square root symbol will come automatically; you'll need to enter the one that completes it.

The parentheses around the 23 will not automatically appear on the **TI-82, 85,** or **86**; you may put them in or leave them off. Your screen may look like $\left(4 + \sqrt{\ }23\right)/7$.

You should get 1.26. Did you?

Now press the **2nd** button and then the **ENTER** key. The second function of the **ENTER** key is **ENTRY**; it repeats your last entry so you can change it. Arrow over to the plus sign, replace it with a minus sign, and hit **ENTER**. It should tell you that $\dfrac{4 - \sqrt{23}}{7}$ is -.11. This will save you from reentering expressions when you only want to change a part of it.

2nd ANS:

Use your calculator to find the value of $3\sqrt{42}$. Now let's say we wanted to know what $5 - 3\sqrt{42}$ is. Enter "**5 –** " into the calculator, then press the **2nd** button and the **(-)** button in the gray number pad area. The second function of the **(-)** button is **ANS**; it stands for the previous answer given by the calculator, which should be 19.44. It should read "**5–Ans**". Then press ENTER. Did you get -14.44?

2nd QUIT:

To exit various menus and screens, press the **2nd** button and then the **MODE** button to its right. The second function of the **MODE** button is the **QUIT** command. Try it now; enter the graphing area by pressing the **Y=** button. Then exit there by pressing **2nd QUIT**. You are back on the home screen.

On the **TI-85** or **86**, **QUIT** is the second function of the **EXIT** button, directly to the right of the **2nd** button. You can also just use the **EXIT** button to exit menus.

DEL (Delete):

Let's say I wanted to find the value of $\dfrac{\left(4 + 28^3\right)}{6}$. Enter the whole thing in at once; it should look like $\left(4 + 28\^3\right)/6$. (Did you get 3659.33?) But wait! I meant $\dfrac{\left(4 + 8^3\right)}{6}$. Let's press **2nd ENTRY** to call back up what we already put in. Then arrow over to the "2" of the "28" and press the **DEL** button, two buttons to the right of the **2nd** button.

On the **TI-85** or **86**, this key is two buttons to the right and one down from the **2nd** button.

This button deletes the character the cursor is over. Then press **ENTER**. (Did you get 86?)

2nd INS (Insert):

Now let's say we wanted to find $\dfrac{\left(4 - 2*8^3\right)}{6}$. We want to insert/change some characters in the expression we have from above. Press **2nd ENTRY** to call back up the expression $\left(4 + 8\^3\right)/6$. Move the cursor to the plus sign and press **2nd DEL**. The second function of **DEL** is **INS** for **INSERT**. Then type in "**–2∗**". (Use the minus key here, not the negative sign.) Delete the plus sign so it reads $\left(4 - 2*8\^3\right)/6$ and press **ENTER**. (Did you get -170?)

CLEAR:
The **CLEAR** button clears out a whole line of text, unlike the **Delete** key which only deletes the character the cursor is on. On the home screen, to clear the line you're currently typing, press **CLEAR** once. Press **CLEAR** again to clear the whole screen. When you are on a new line, pressing the **CLEAR** button once will clear the whole screen. (The **CLEAR** button is found below and to the right of the arrows.)

2nd STAT PLOT:
On the **TI-83 or 86**, press the **Y=** button to enter the Y-editor screen. This is where we will enter functions to be graphed. Notice the **Plot1**, **Plot2**, and **Plot3** at the very top of the screen. These icons are for scatter plots and other types of graphs we will occasionally use. Sometimes, however, these are turned on when we do not want them and so cause errors or onscreen clutter. If **Plot1**, **Plot2**, or **Plot3** is highlighted, it is on and the calculator will attempt to plot it. To turn it off, arrow up and over to it. Press **ENTER** when you are over the appropriate icon. Pressing **ENTER** toggles between the on and off positions. It should not be highlighted if you do not want it to graph.

On the **TI-83**, you may also turn on or off these plots through the **STATPLOT** menu. From the home screen, press the **2nd** button and the **Y=** button. The second function of the **Y=** button is **STATPLOT**. You can arrow down to select a plot, and then press **ENTER** to enter its setup screen. Arrow over to **Off** and press **ENTER** until **Off** is highlighted to turn the plot off.

On the **TI-82**, access the **STATPLOT** menu is by pressing the **2nd** button and then the **Y=** button. Notice the second function of the **Y=** button is **STATPLOT**. These plots are for scatter plots and other types of graphs we will occasionally use. Sometimes, however, these are turned on when we do not want them and so cause errors or onscreen clutter. You can arrow down to select a plot, and then press **ENTER** to enter its setup screen. Arrow over to **Off** and press **ENTER** until **Off** is highlighted to turn the plot off.

On the **TI**-**86**, the **STATPLOT** menu is also accessed by pressing **2nd**, then the **plus sign**. The second function of the plus sign is **STAT**. Select **PLOT**. This screen will tell you if any plots are turned on. For instance, say **PLOT1** is on. We would select **F1** to access **PLOT1** and then arrow over to **Off** and press **ENTER** to turn it off. Then press **EXIT** a couple of times to exit this menu.

This does not apply to the **TI**-**85**. We will learn how to deal with the **STATPLOT** function on the **TI**-**85** later.

We will use this function later.

Finding factors of a number on your calculator:
As an example, let's find the factors of 60.

Enter the **Y=** editor and enter 60/X into the line for **Y₁**. This is basically the number you want to find the factors of divided by **X**.

We will use the **TABLE** function to read off the factors of the number. But first we need to set up the table.

On the **TI-82, 83,** or **84**, press **2ⁿᵈ** and then the **WINDOW** button below the screen. This takes you to the **TBLSET** or Table Setup screen. Arrow down to change the following items if they are not already set. The **TblStart** (**TblMin** on the **TI82**) should read 0. The **ΔTbl** should read 1. Both **Indpnt** and **Depend** should be set to **AUTO**.

On the **TI-82, 83,** or **84**, press **2ⁿᵈ** and then **GRAPH** to access the **TABLE**. Down the first column, labeled **X** at top, you should see integer values. Down the second column, labeled **Y₁**, you should see the results of 60 divided by each X value. Remember a number is divisible by another if the result of the division is an integer. So we can read the pairs of factors off by finding the (X, Y₁) pairs that are both integers. Scroll down to see that these are 1 and 60, 2 and 30, 3 and 20, 4 and 15, 5 and 12, & 6 and 10. Notice when X is 7, the Y₁ value is not an integer so we know 7 is not a factor of 60. The next X value that gives you an integer value for Y₁ is 10. Since this was already seen in the pair 6 and 10, we know we have all of the factors.

On the **TI86**, press the **TABLE** button (to the right of the **GRAPH** button). Then select **TBLST (F2)**. This takes you to the Table Setup screen. Arrow down to change the following items if they are not already set. The **TblStart** should read 0. The **ΔTbl** should read 1. The **Indpnt** should be set to **AUTO**.

On the **TI86**, from the previous screen, select **TABLE (F1)** to access the **TABLE**. Down the first column, labeled **x** at top, you should see integer values. Down the second column, labeled **y1**, you should see the results of 60 divided by each x value. Remember a number is divisible by another if the result of the division is an integer. So we can read the pairs of factors off by finding the (x, y1) pairs that are both integers. Scroll down to see that these are 1 and 60, 2 and 30, 3 and 20, 4 and 15, 5 and 12, & 6 and 10. Notice when x is 7, the y1 value is not an integer so we know 7 is not a factor of 60. The next x value that gives you an integer value for y1 is 10. Since this was already seen in the pair 6 and 10, we know we have all of the factors.

On the **TI85**, there is no table function. Sorry, I do not think this works on the **TI85**.