

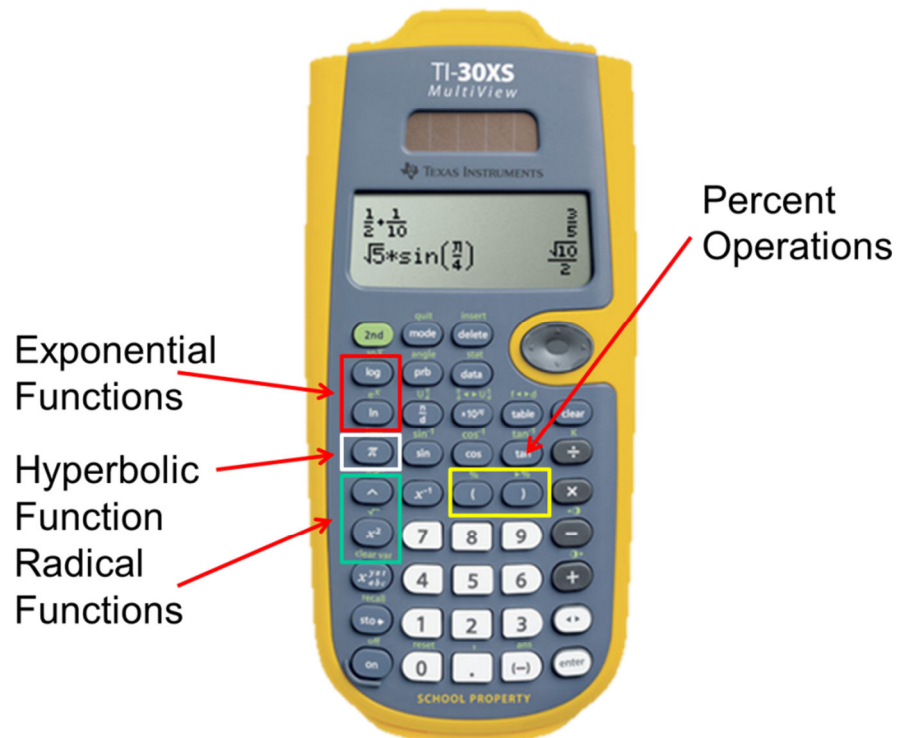
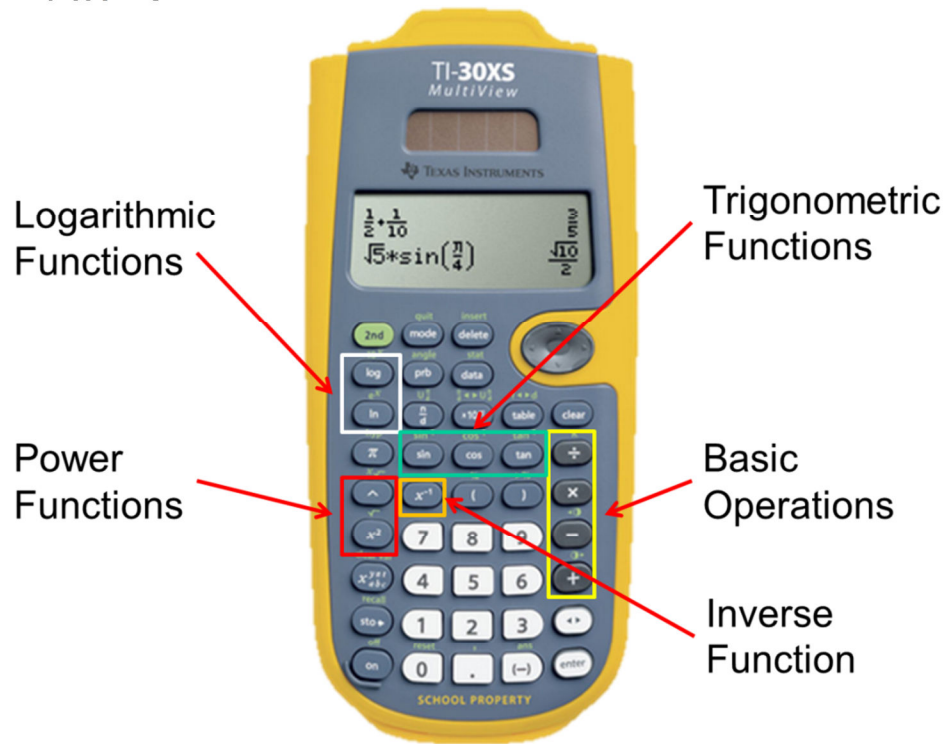
Math Defrag**GED**: Calculator Tips and Tricks

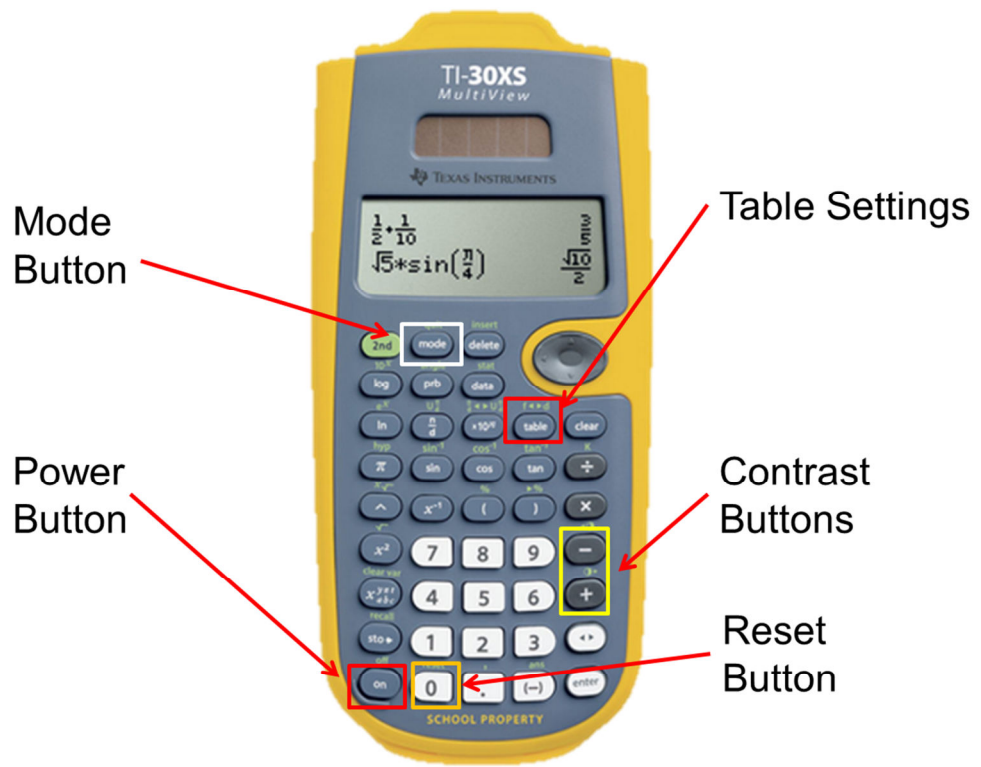
Webinar
May 6, 2015

Handout



Organization of the TI-30XS MultiView™ Calculator Buttons





TI-30XS MultiView

Mode Button

Angle Modes:

- Degrees
- Radians
- Gradians

Numeric Notation Modes:

- Normal
- Scientific
- Engineering

Decimal Notation Modes:

- Floating
- Fixed

Display Modes:

- Classic
- Mathprint

TI-30XS MultiView

Mixed Number Conversion

Decimal Conversion

Percent Conversion

Toggle Button

Knowing how the calculator buttons are organized is key to becoming more efficient in its use. This also helps students increase their speed in calculator computations.

The next sections will discuss different features of the TI-30XS™ MultiView Calculator.

Inserting and Clearing

clear	<p>Clears an error message.</p> <p>Clears characters on entry line.</p> <p>Moves the cursor to last entry in history once display is clear.</p> <p>Backs up one screen in applications.</p>
delete	Deletes the character at the cursor.
2nd [insert]	Inserts a character at the cursor.

Storing and Recalling

- The TI-30XS Calculator automatically stores the last answer. To recall the last answer simply press **2nd** then [ans].
- **sto ▶** lets you store values to variables. Enter in the value that you want to store, then press **sto ▶**. Followed by, pressing x^{yzt}_{abc} to select the destination variable for storage.
- To recall the variable stored, simply press x^{yzt}_{abc} to access the menu of variables. Select the variable, then press **enter**. The name of the variable is inserted into the current entry, but the value assigned to the variable is used to evaluate the expression.

The MathDefragGED Calculator Tips and Tricks Webinar presented some sample calculator conversion drill problems that teacher can use with their students. The next page may be reproduced by teachers as a type of worksheet for students to practice the conversion buttons in their calculator. The answer key is also provided in this handout.

Calculator Conversion Drill Problems

1. Convert $\frac{3}{5}$ to a decimal.
2. Convert 0.41 to a percent.
3. Convert $\frac{9}{7}$ to a mixed number.
4. Convert $7\frac{5}{8}$ to a decimal and then to an improper fraction.
5. Convert 62% to a decimal.
6. Find the approximate value of $\sqrt{8}$.

Calculator Conversion Drill Answer Key

1. 0.6
2. 41%
3. $1\frac{2}{7}$
4. 7.625; $\frac{61}{8}$
5. 0.62
6. 2.828427125

The Probability Menu

The key step in solving calculator type problems involving permutations, combinations and factorials is to understand when to use each one. The scope of the MathDefragGED Calculator Tips and Tricks Webinar is limited to outcomes without replacement or without repetition. More complex outcomes with replacement or repetition will be covered in the next series of MathDefragGED Webinars.

Symbol	Description
nPr	– Permutation - Selection of objects in a collection where the order is important
nCr	– Combination - Selection of objects in a collection where order is irrelevant
!	– Factorial = nPn - Selection of all objects in a collection where the order is important

All of the options listed above computes the number of outcomes necessary when finding the probability of a specific event. One thing to note is that the factorial operation is the same as a permutation operation when all objects in the collection is being selected.

This means: $n! = nPn$

The next page provides sample word problems to practice the use of the options within the probability menu. The answer key is also provided in this handout.

Sample Word Problems (Probability Menu)

1. In designing your own backsplash, how many ways can you arrange 6 different colored tiles on a strip?



2. Luis has an empty plant box that can hold three plants so he went to Homes R Us to purchase plants. The store has 7 varieties of small plants to choose from. How many ways can Luis select 3 different plants to put in his empty plant box?

Sample Word Problems (Probability Menu) Answer Key

1. In this particular problem, the order in which the tiles are arranged is important because each ordering produces a different tile strip pattern without repetition of colors. Therefore, a permutation operation will be used to determine how many ways 6 different colored tiles can be arranged on a strip.

Let us determine how many different objects are there in the collection. Based on the given problem, there are 6 different colored tiles.

$$n = 6$$

Let us determine how many tiles will be placed on a strip. Based on the problem, all 6 different colored tiles will be used.

$$r = 6$$

Setting-up our permutation:

$${}_n P_r = {}_6 P_6$$

Using our calculator:

First, we press the number of objects, n , which is 6. Then, we press

prb

to pull up the probability menu. The first option in the menu is already pre-selected. So to select this option, simply press **enter**.

Next, we enter the number of objects in each selection, r , which is 6.



The last step is to hit **enter** to get 720.

Alternative:

Knowing that all the objects in this situation are being selected, the factorial operation/option will be a faster way to obtain the answer.

First, we press the number of objects, n , which is 6. Then, we press

prb

to pull up the probability menu. Then we scroll down  

to the third selection [3: !]. The last step is to hit **enter** to get 720.

There are 720 ways 6 different colored tiles can be arranged on a strip.

2. In this particular problem, the order in which Luis selects the plants is not important. Therefore, a combination operation will be used to determine how many ways 3 small plants can be chosen from a collection with 7 varieties.

Let us determine how many different objects are there in the collection. Based on the given problem, there are 7 varieties of small plants.

$$n = 7$$

Let us determine how many small plants is being selected at a time. Based on the problem, Luis will pick 3 different plants from the collection.

$$r = 3$$

Setting-up our combination:

$${}_n C_r = {}_7 C_3$$

Using our calculator:

First, we press the number of objects, n , which is 7. Then, we press

prb to pull up the probability menu. We want the second option in the menu, which is the combination option. So to select this option, simply scroll down and press **enter**. Next, we enter the number of objects in each selection, r , which is 3. The last step is to hit **enter** to get 35.

There are 35 ways Luis can select 3 small plants from a selection of 7 different small plants.

Constant [K] Feature

[K] is a constant feature in the calculator that stores operations so that each subsequent time $\boxed{2\text{nd}} \boxed{[K]}$ is pressed, the operation is recalled.

Steps:

1. Press $\boxed{2\text{nd}} \boxed{[K]}$ to turn on.
2. Store any combination of values, operations and numbers. Press $\boxed{\text{enter}}$ to save.
3. Each subsequent time $\boxed{\text{enter}}$ is pressed, the operation is recalled.
4. Press $\boxed{2\text{nd}} \boxed{[K]}$ again to turn off this feature.

The next page shows a word problem where you can practice the use of the constant [K] feature.

Sample Word Problem (Constant [K])

1. A farmer has three silos. The largest silo has a diameter of 24 feet. The radius of the smallest silo is one-third as big as the diameter of the largest. The middle-sized silo has a radius that is 2 feet greater than the radius of the smallest silo. What is the circumference of each silo?



Answers: 16π ; 20π ; 24π

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