QMS 210: How to use your Calculator

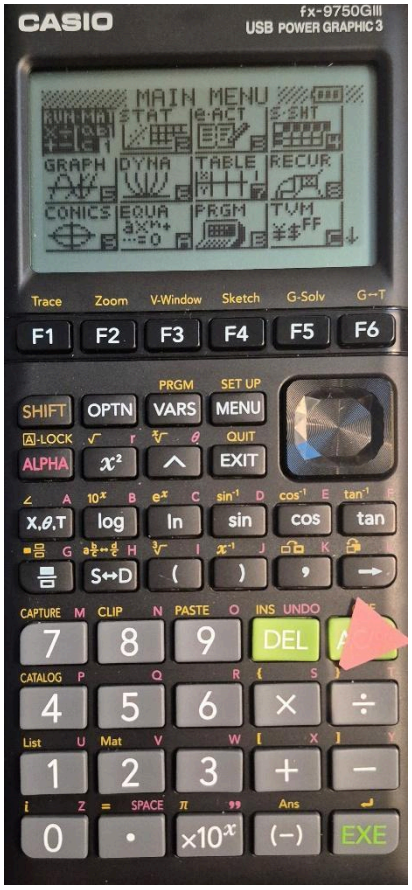
TRAIN TO LEARN EFFECTIVELY: TIP SHEETS

Contents

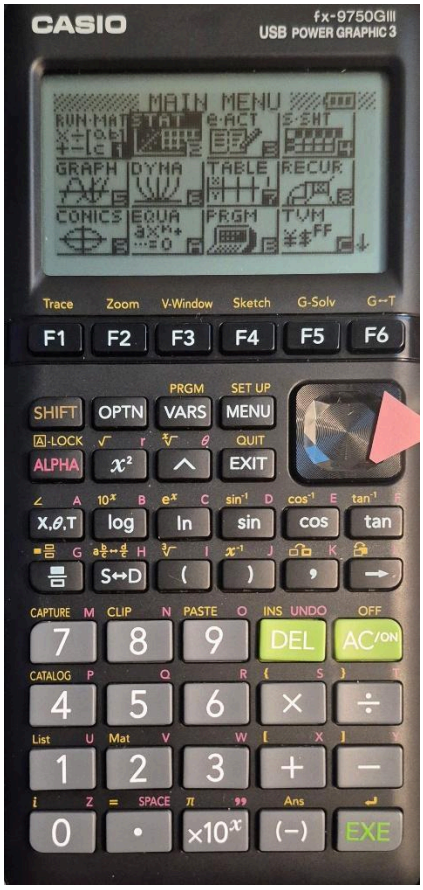
QMS 210: How to use your Calculator

TRAIN TO LEARN EFFECTIVELY: TIP SHEETS

1. Getting into STAT Mode

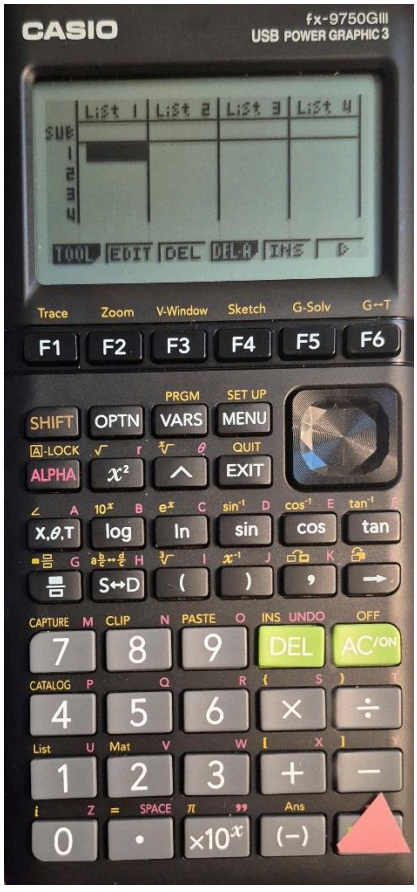


Turn on your calculator using the AC on/off button.



You are now in MENU.

Using the keypad, move your cursor to the second option: STAT.

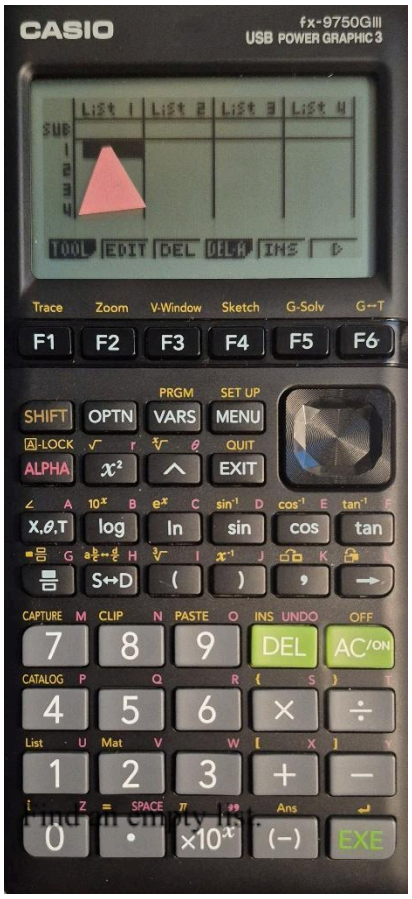


To select STAT mode, press execute (EXE).

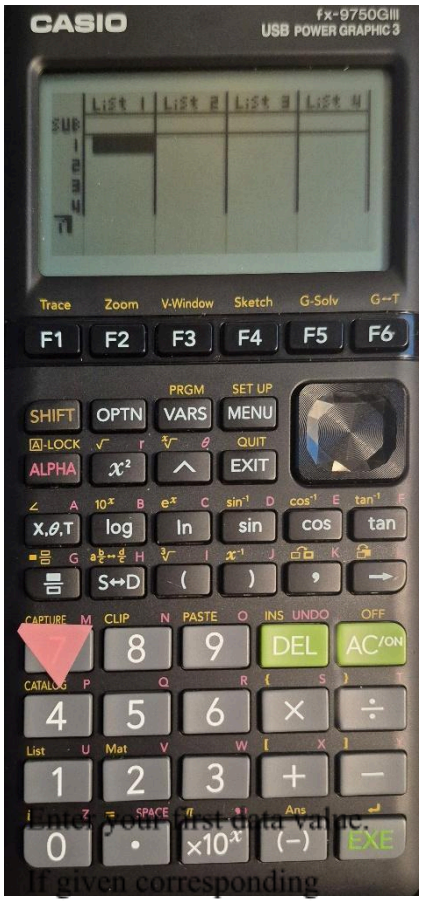
You are now in STAT mode!

QMS 210: How to use your Calculator

TRAIN TO LEARN EFFECTIVELY: TIP SHEETS

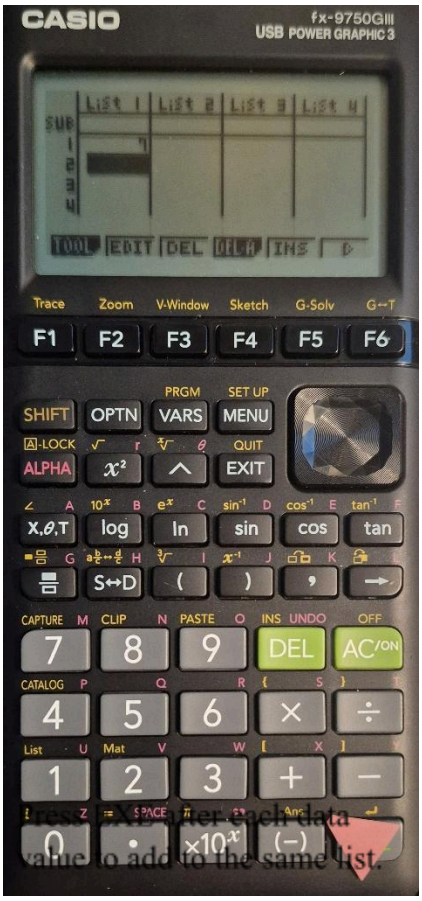


Find an empty list.



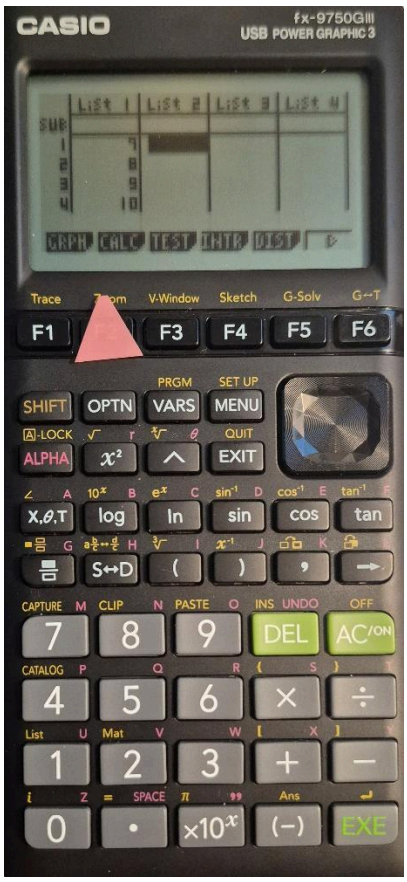
Enter your first data value.

If given corresponding frequencies for your data, enter those values into a separate list.



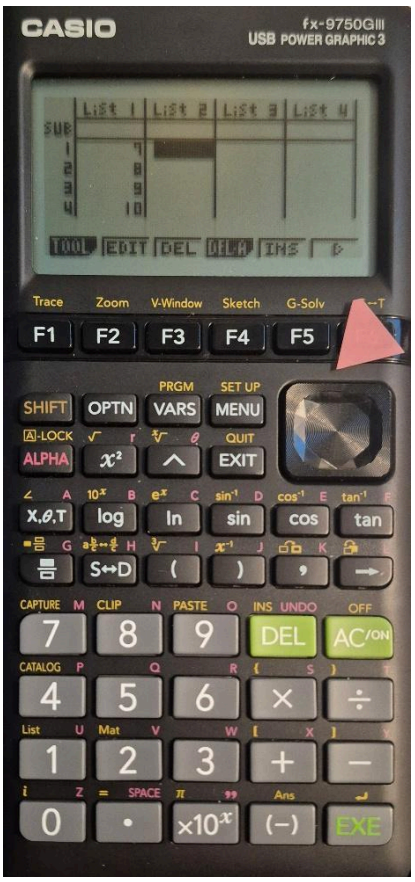
Press = after each data value to add to the same list.

2. Finding Measures of Central Tendency and Variability using Lists

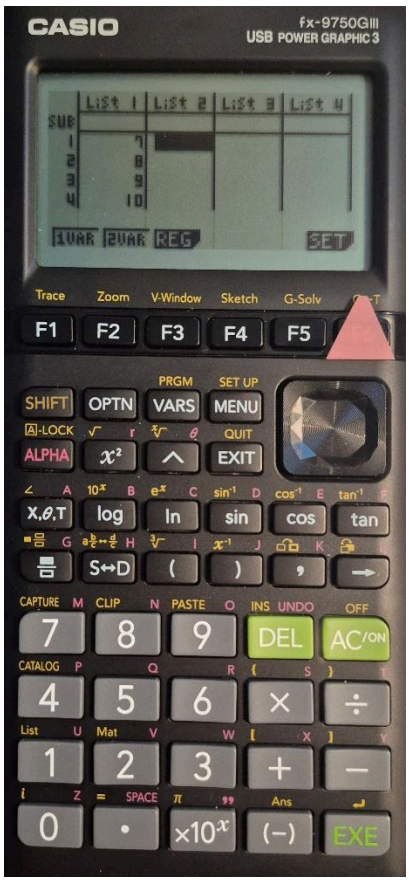


Press Calc (F2).

Use this mode to find measures of central tendency and variation.



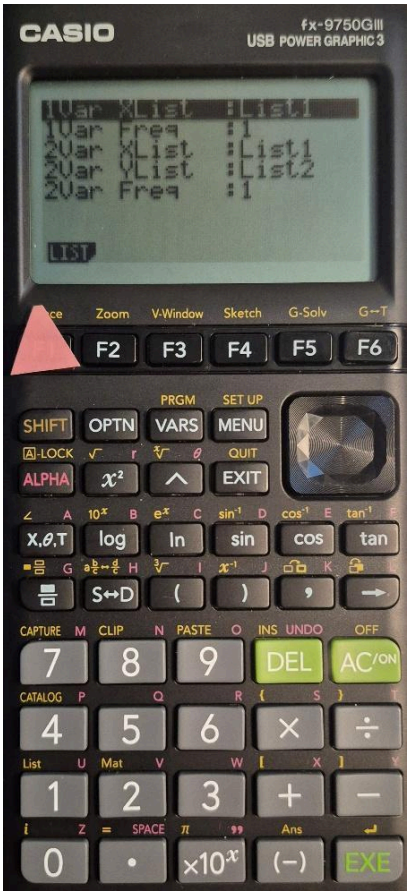
If you cannot find CALC, press the arrow (F6) for more options until you find CALC.



After pressing CALC, press SET (F6).

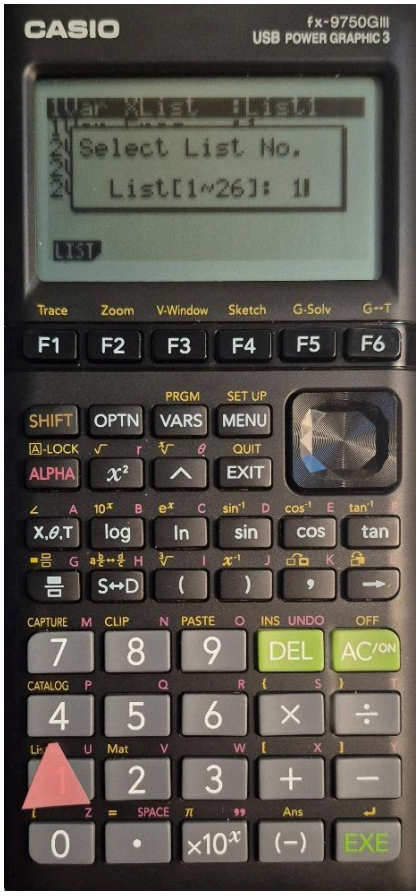
QMS 210: How to use your Calculator

TRAIN TO LEARN EFFECTIVELY: TIP SHEETS



Here, you will tell your calculator where to find your data.

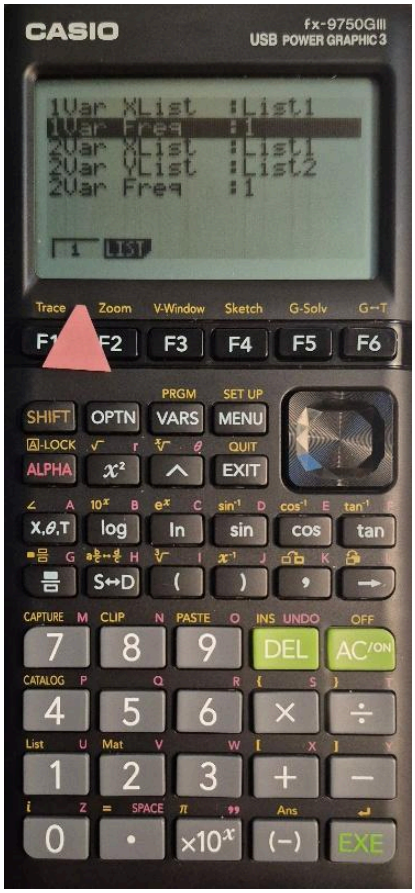
Identify your data list and your Frequencies.



1Var XList – indicate which list your data is in.

Use EXIT to go back and check which list you used if needed.

Press EXE when done.



Using your trackpad, move down to the second row (1Var Freq).

Here, you will indicate the frequency for the data from the previously indicated list.

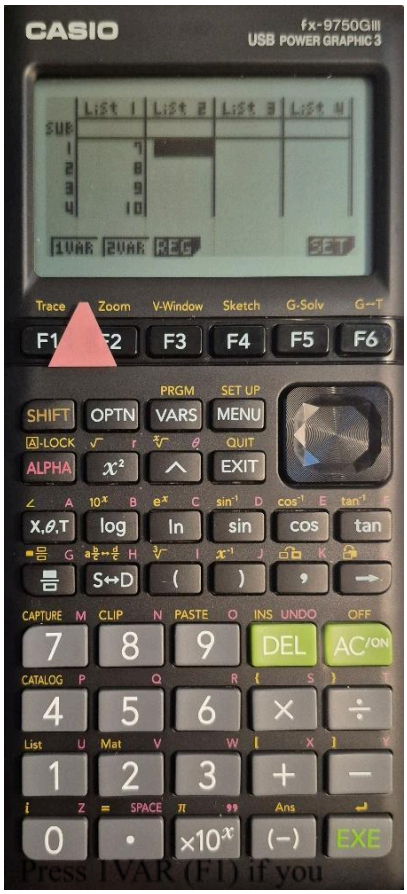
If each data point only occurs once, press 1 (F1). If given a list of frequencies, press LIST (F2) and indicate the list with the corresponding frequencies.

If working with 2 variables, follow the same steps for those variables and use 2Var XList and 2Var Freq. **Do not touch 2Var YList.**

Press EXE when done to return to the list screen.

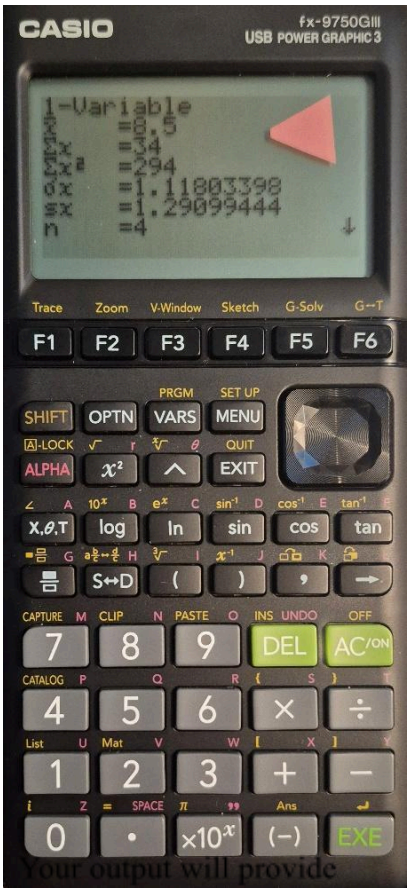
QMS 210: How to use your Calculator

TRAIN TO LEARN EFFECTIVELY: TIP SHEETS



Press 1VAR (F1) if you have 1 variable.

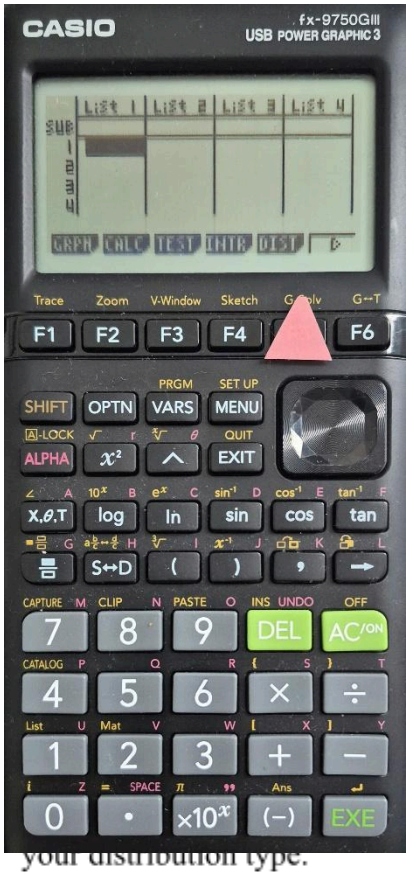
Press 2VAR (F2) if you have 2 variables.



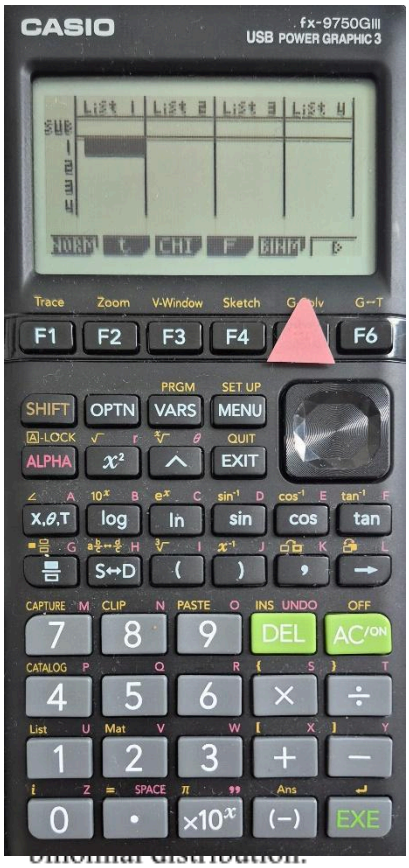
Your output will provide you with measures of central tendency and variation.

Use your trackpad to scroll down for more measures.

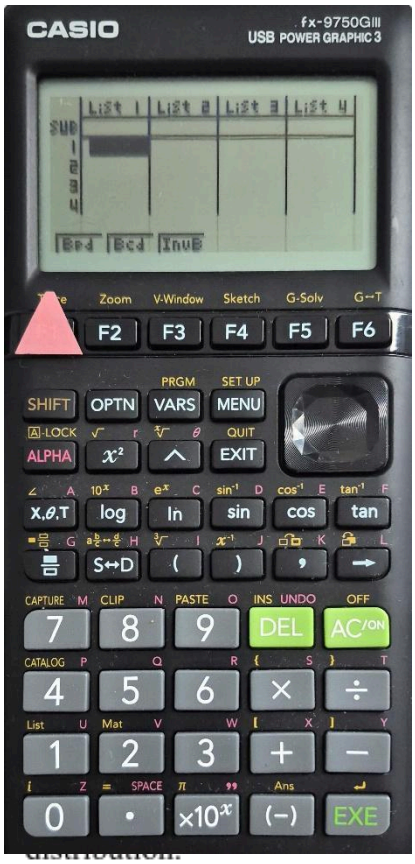
3. Binomial Distributions – Bpd



your distribution type.



binomial distribution.

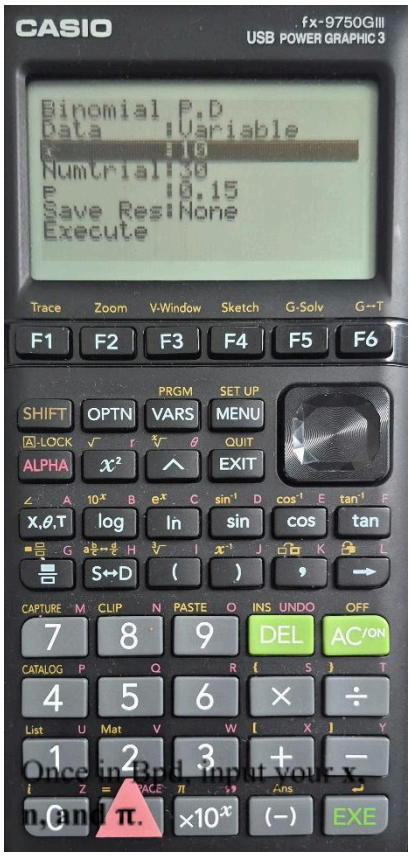


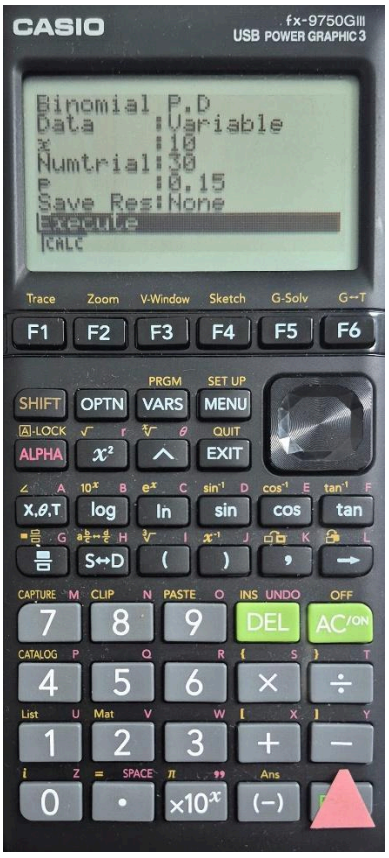
distribution.

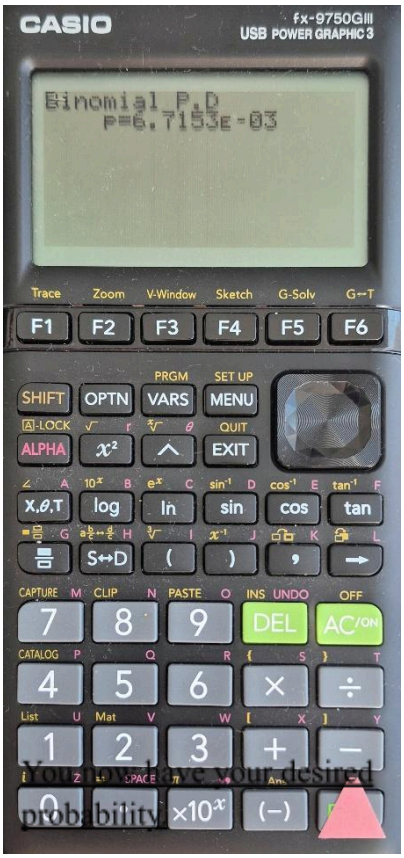
Note: Here, discrete means you are looking for the probability of an exact data point (x-value).

QMS 210: How to use your Calculator

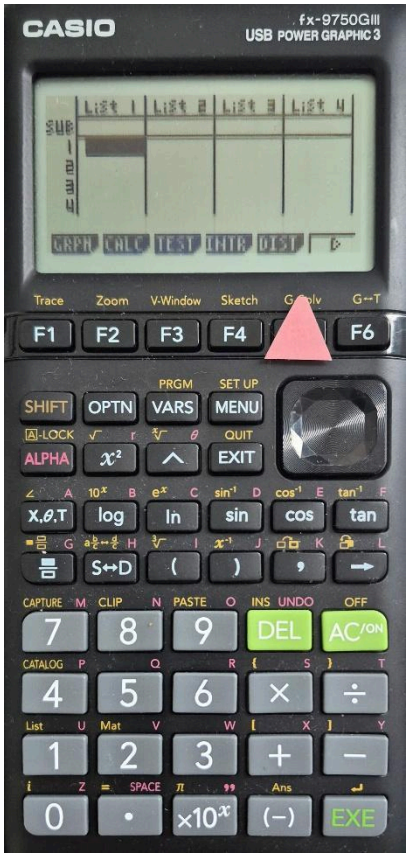
TRAIN TO LEARN EFFECTIVELY: TIP SHEETS

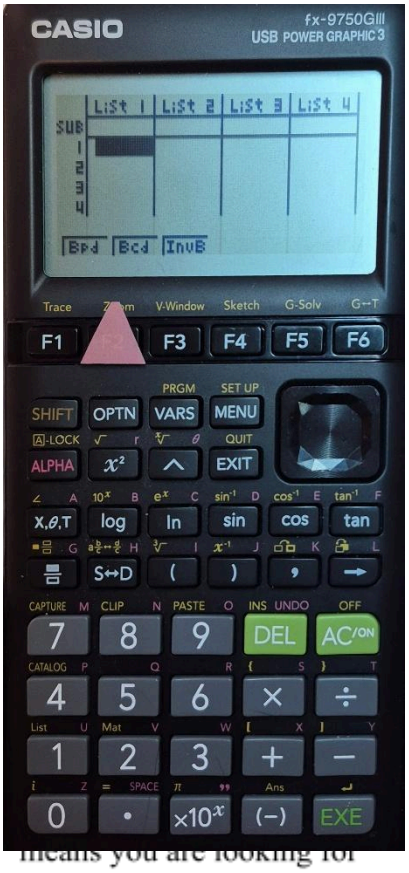






4. Binomial Distributions – Bcd

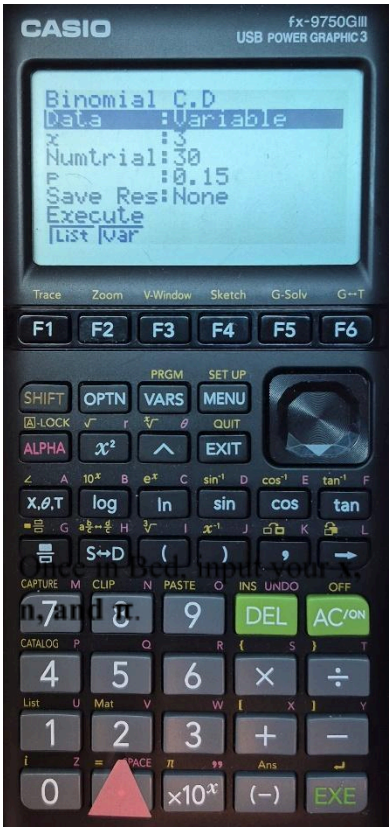


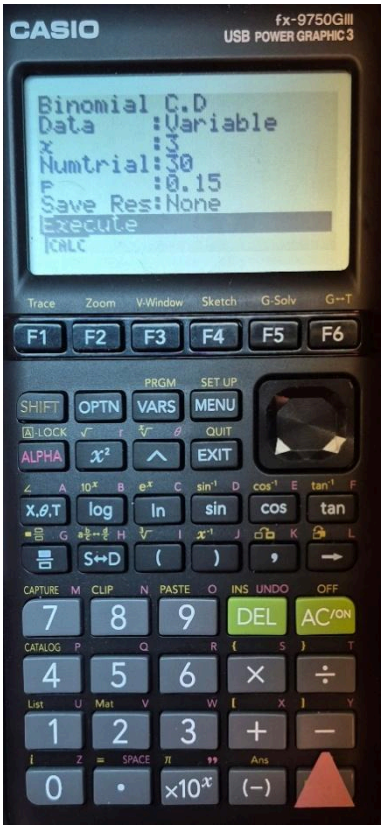


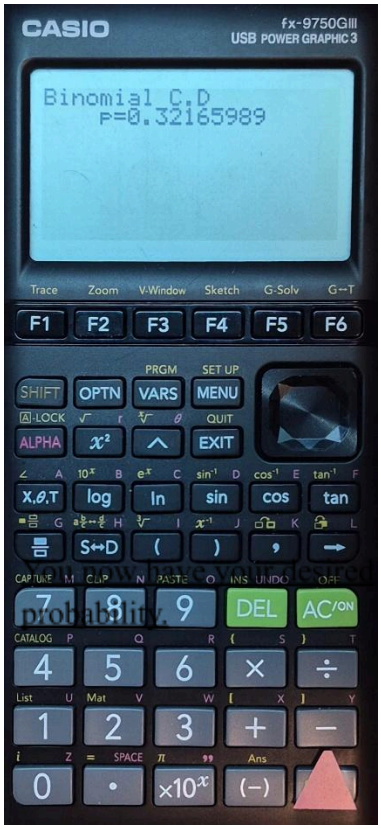
means you are looking for the probability of a range of data points (x-values).

QMS 210: How to use your Calculator

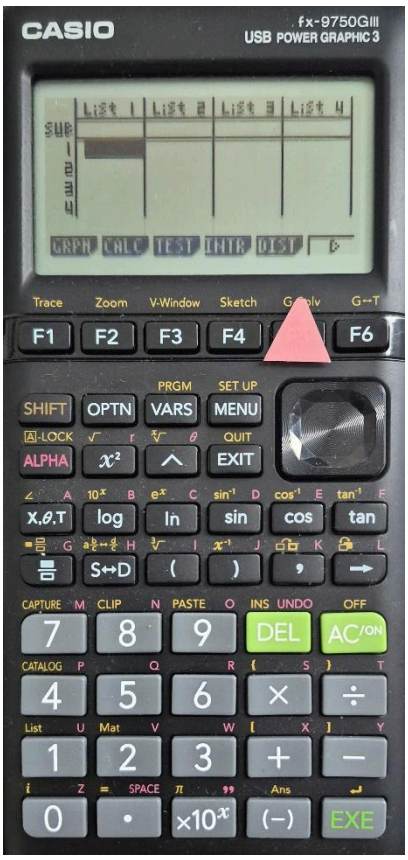
TRAIN TO LEARN EFFECTIVELY: TIP SHEETS

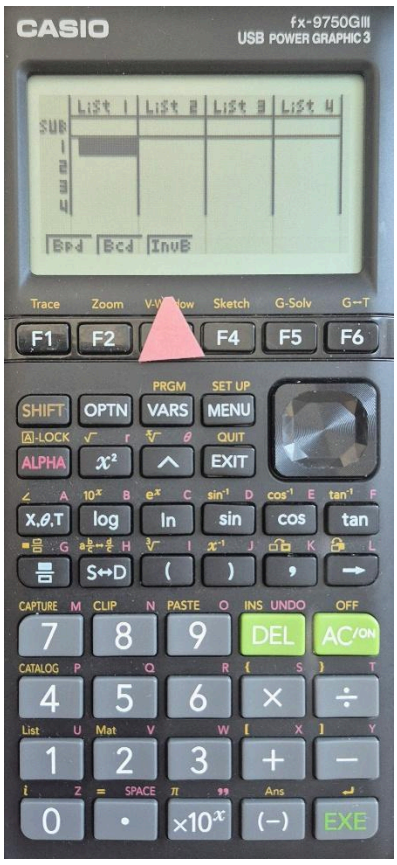


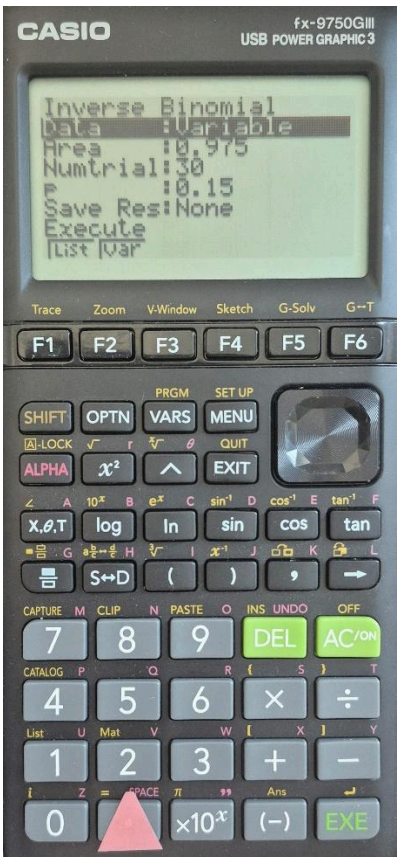


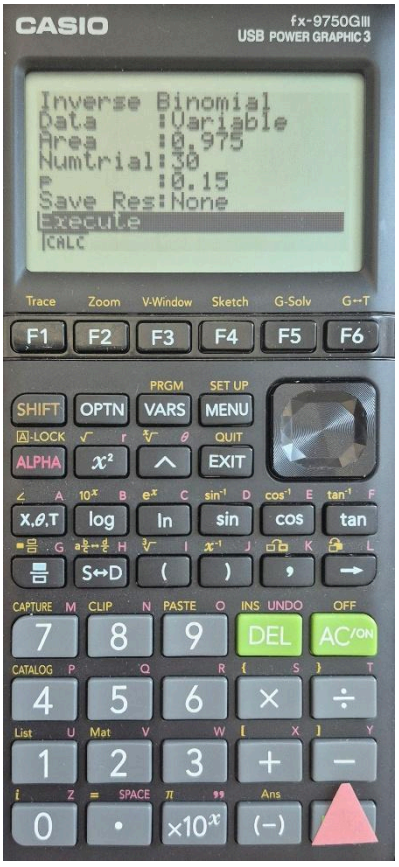


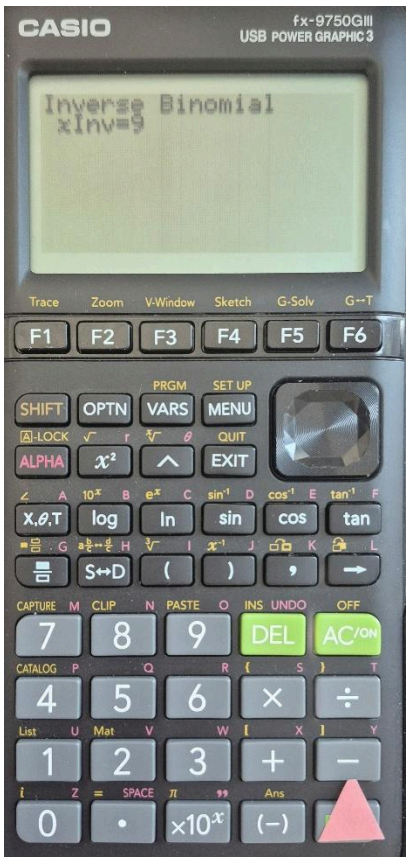
5. Binomial Distributions – InvB



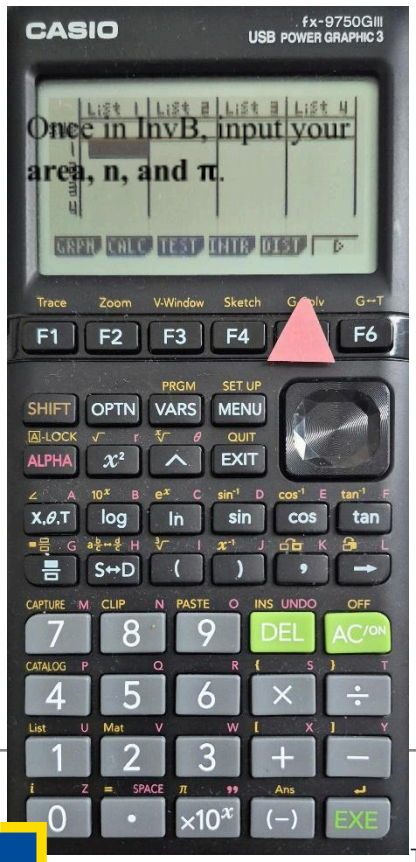


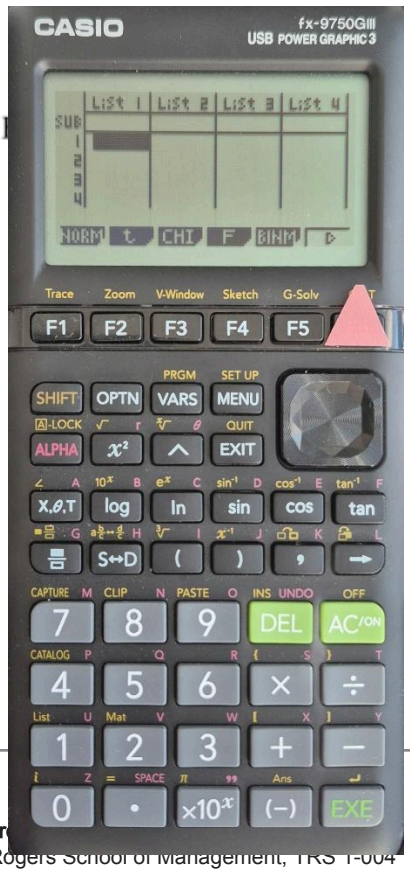

CASIO
fx-9750GIII
USB POWER GRAPHIC 3
Inverse Binomial
Data :Variable
Area :0.975
Numtrial:30
P :0.15
Save Res:None
Execute
List Var
Trace Zoom V-Window Sketch G-Solv G↔T
F1 F2 F3 F4 F5 F6
SHIFT OPTN VARS MENU
ALPHA EXIT
X,θ,T log ln sin cos tan
S↔D
DEL AC/ON
EXE

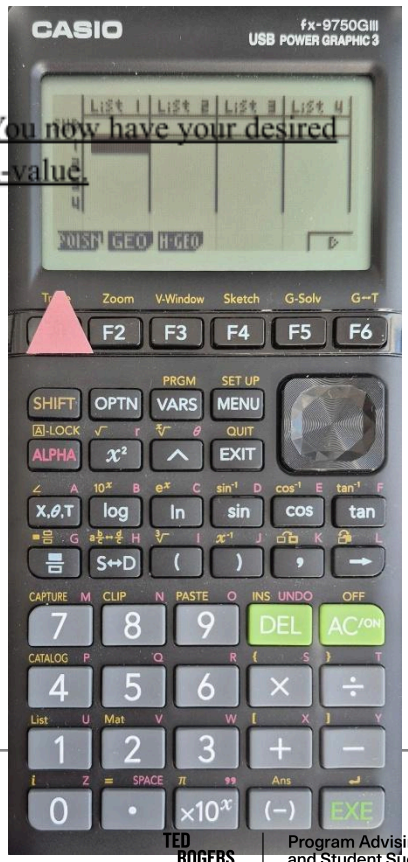

CASIO
fx-9750GIII
USB POWER GRAPHIC 3
Inverse Binomial
Data :Variable
Area :0.975
Numtrial:30
P :0.15
Save Res:None
Execute
CALC
Trace Zoom V-Window Sketch G-Solv G↔T
F1 F2 F3 F4 F5 F6
SHIFT OPTN VARS MENU
ALPHA EXIT
X,θ,T log ln sin cos tan
S↔D
DEL AC/ON


CASIO
fx-9750GIII
USB POWER GRAPHIC 3
Inverse Binomial
xInv=9
Trace Zoom V-Window Sketch G-Solv G↔T
F1 F2 F3 F4 F5 F6
SHIFT OPTN VARS MENU
ALPHA EXIT
X,θ,T log ln sin cos tan
S↔D
DEL AC/ON

6. Poisson Distributions – Ppd

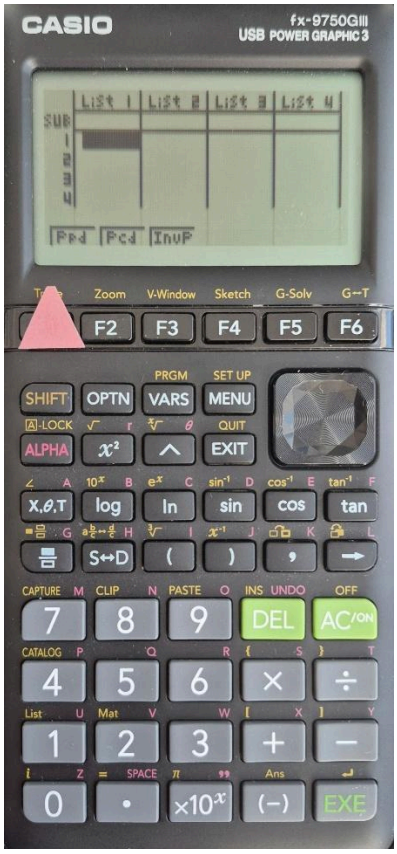






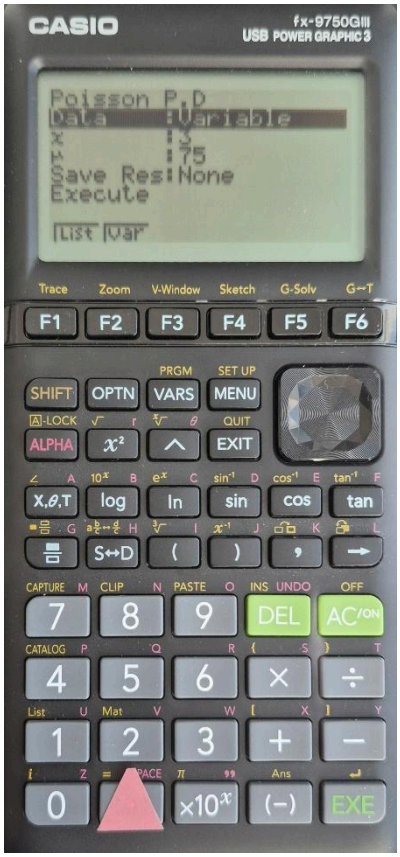
QMS 210: How to use your Calculator

TRAIN TO LEARN EFFECTIVELY: TIP SHEETS

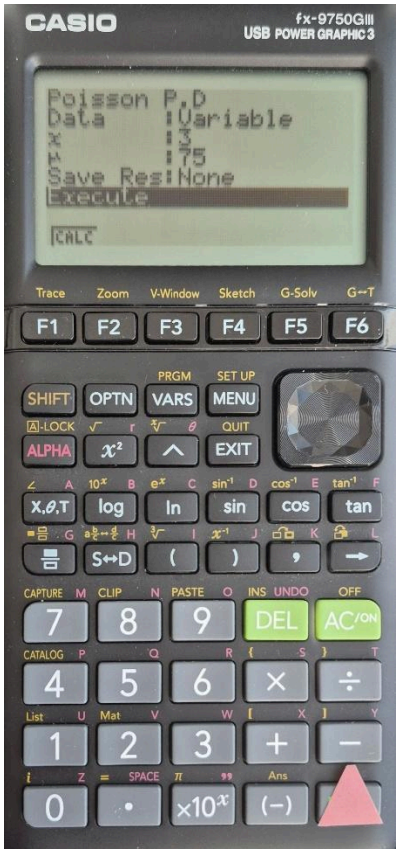


Press Ppd (F1) for a discrete distribution.

Note: Here, discrete means you are looking for the probability of an exact data point (x-value).



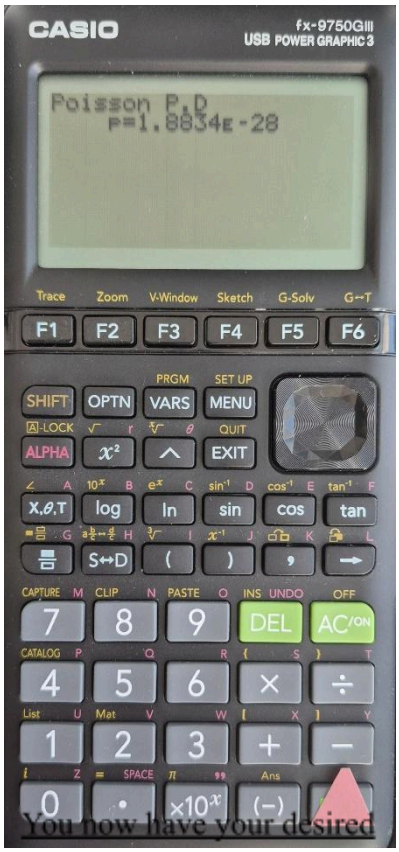
Once in Ppd, input your **x, and average**.



Execute (EXE) when done.

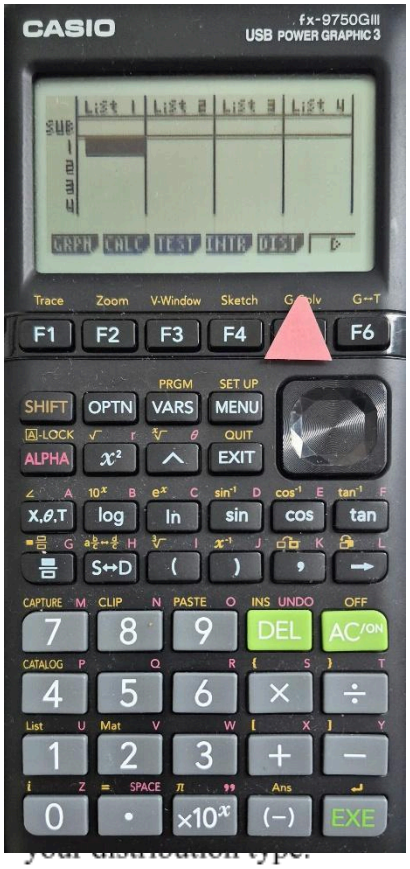
QMS 210: How to use your Calculator

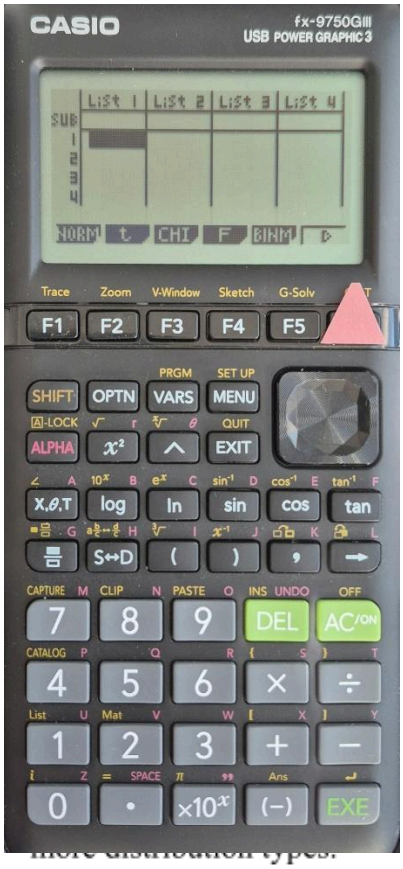
TRAIN TO LEARN EFFECTIVELY: TIP SHEETS

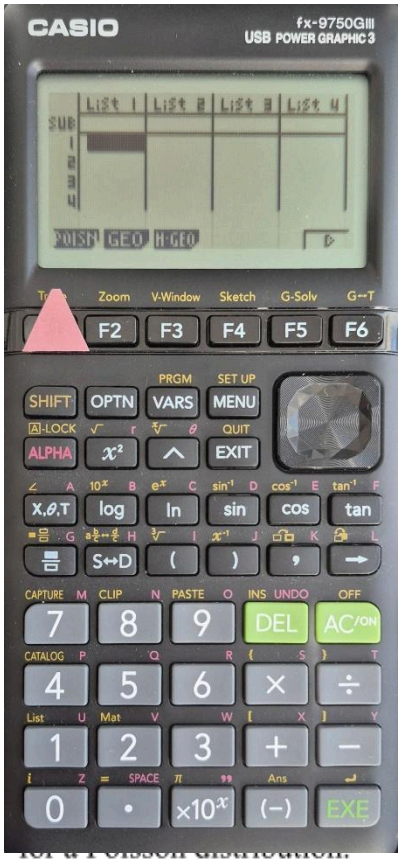


You now have your desired probability.

7. Poisson Distributions – Pcd

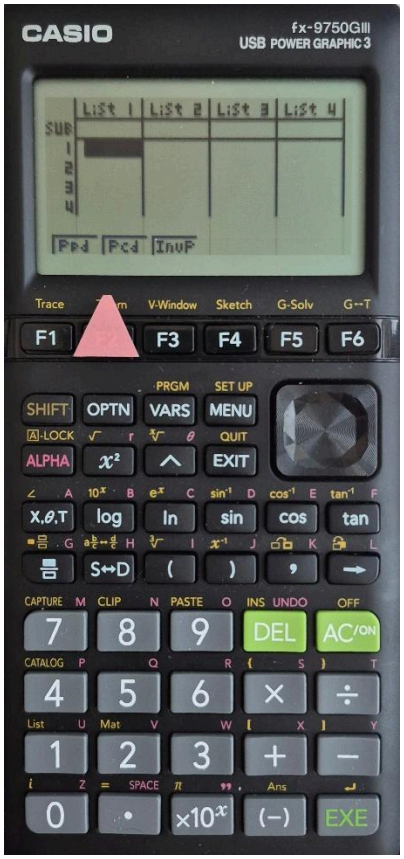






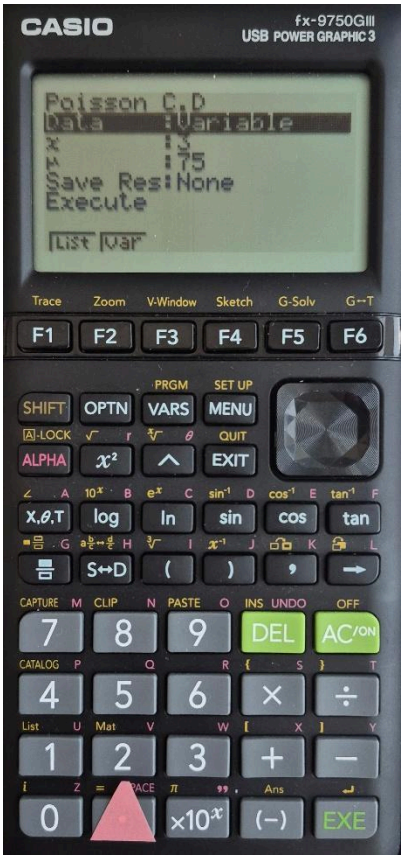
QMS 210: How to use your Calculator

TRAIN TO LEARN EFFECTIVELY: TIP SHEETS

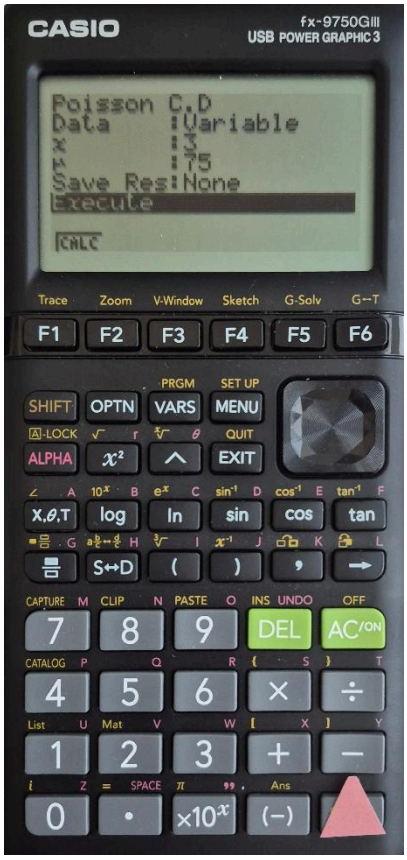


Press Pcd (F2) for a continuous distribution.

Note: Here, continuous means you are looking for the probability of a range of data points (x-values).



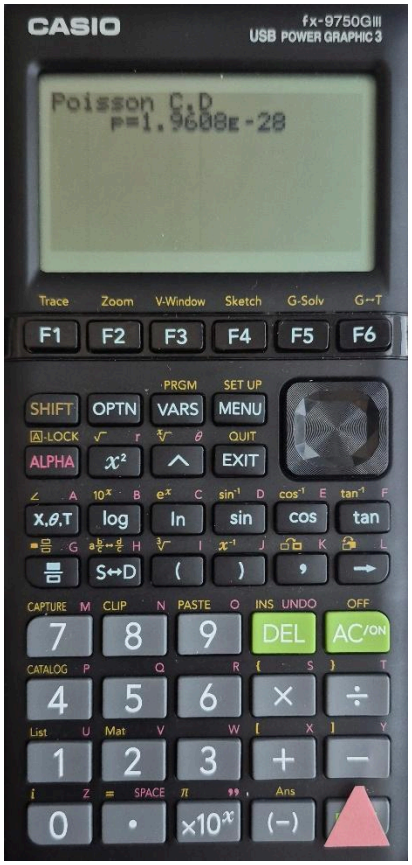
Once in Pcd, input your **x,** and **average**.



Execute (EXE) when done.

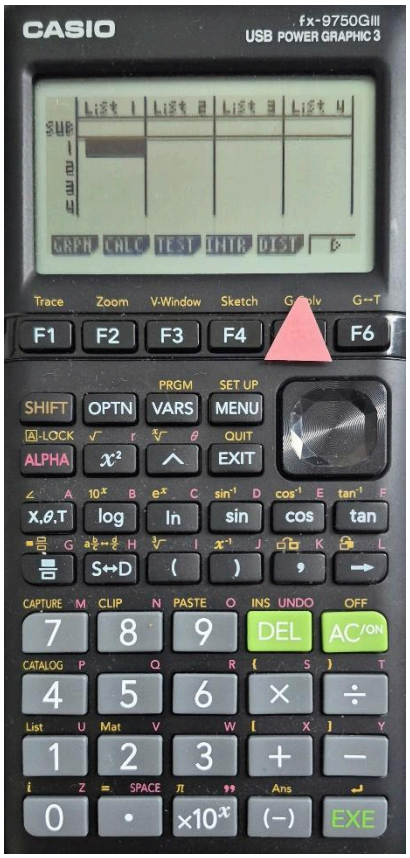
QMS 210: How to use your Calculator

TRAIN TO LEARN EFFECTIVELY: TIP SHEETS

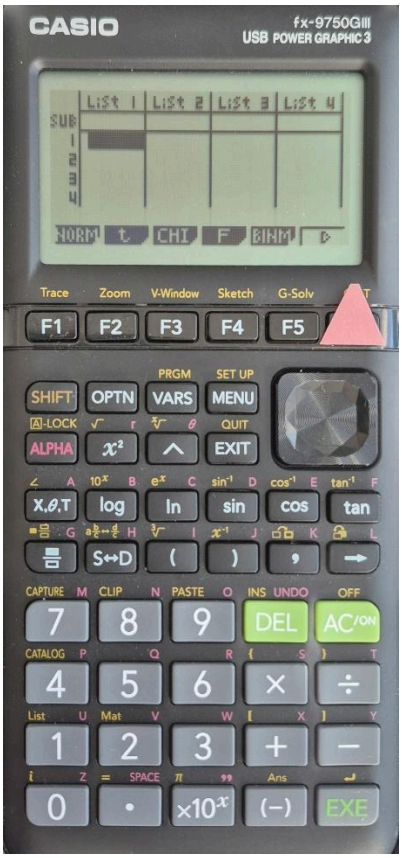


You now have your desired probability.

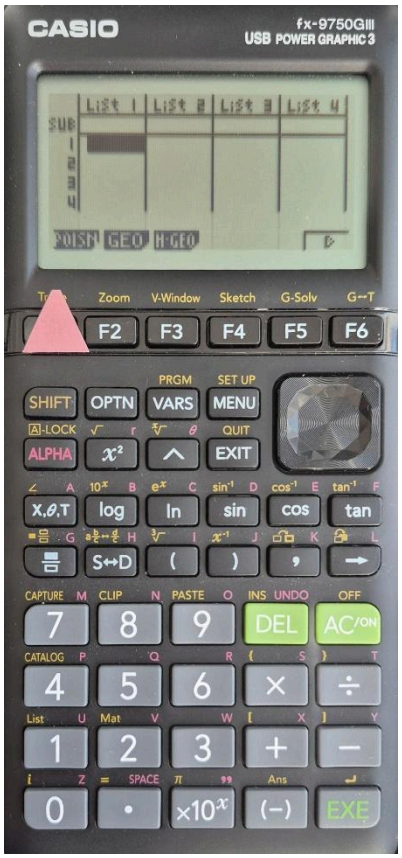
8. Poisson Distributions – InvP



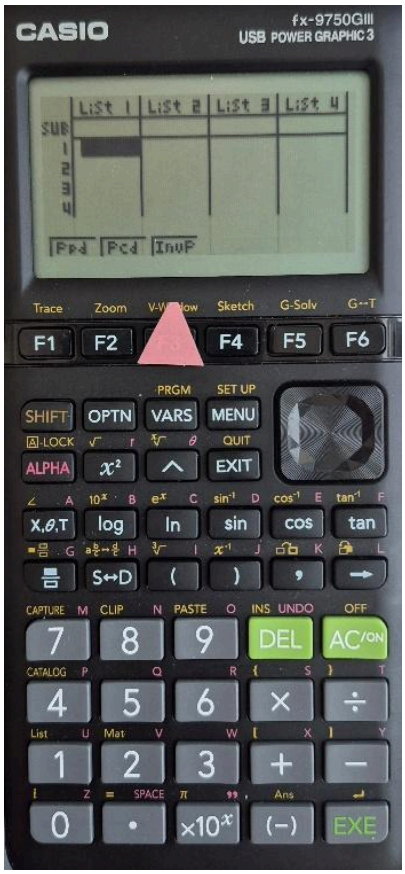
Press DIST (F5) to choose your distribution type.



Press the ARROW (F6) for more distribution types.

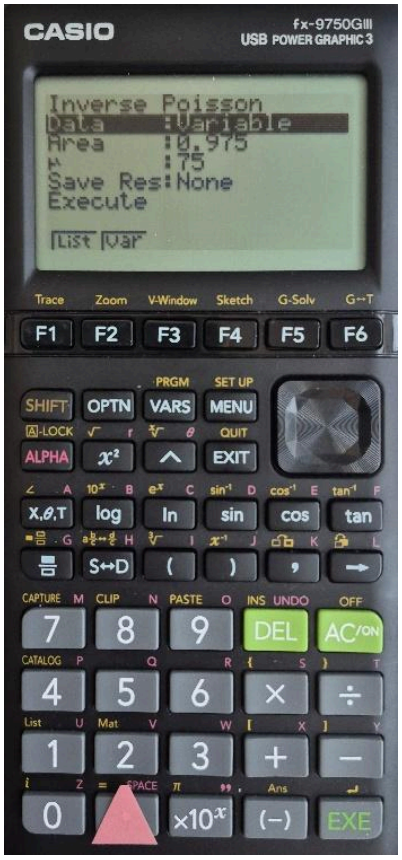


Find and press POISN (F1) for a Poisson distribution.

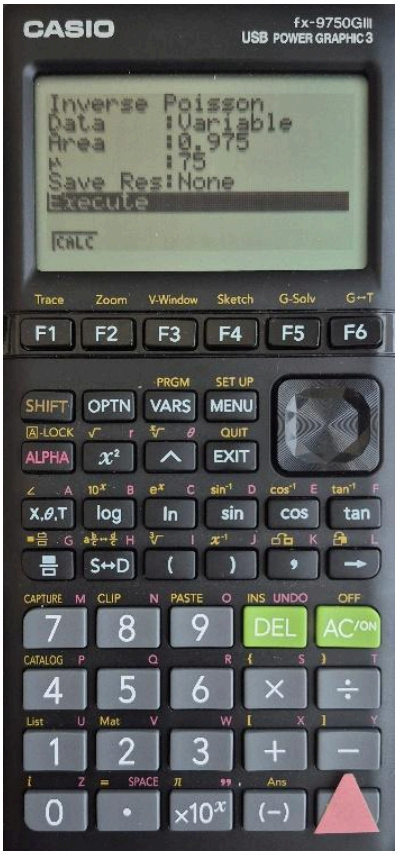


Press InvP (F3) to find your desired x-value.

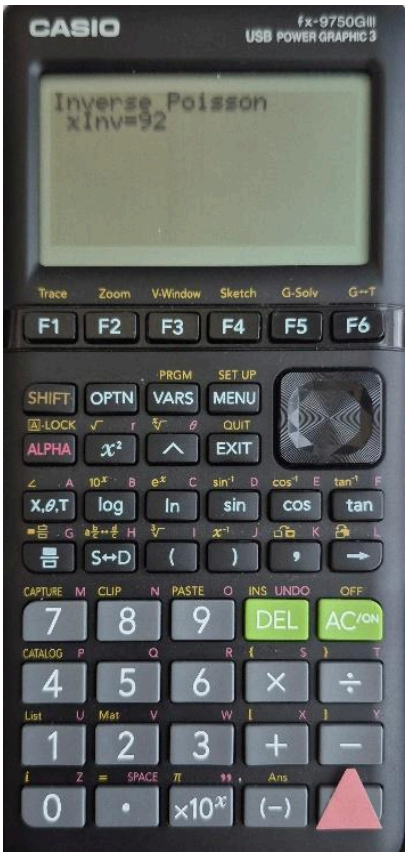
Note: Here, you are using a given probability to find the correlated data value (x-value).



Once in InvP, input your **area and average**.

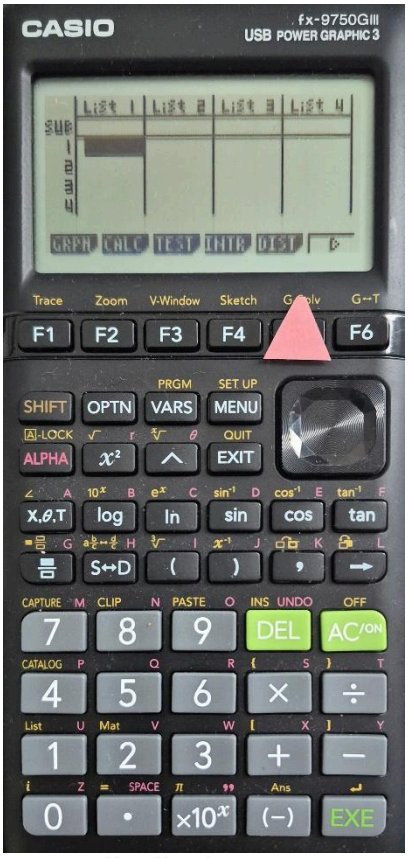


Execute (EXE) when done.

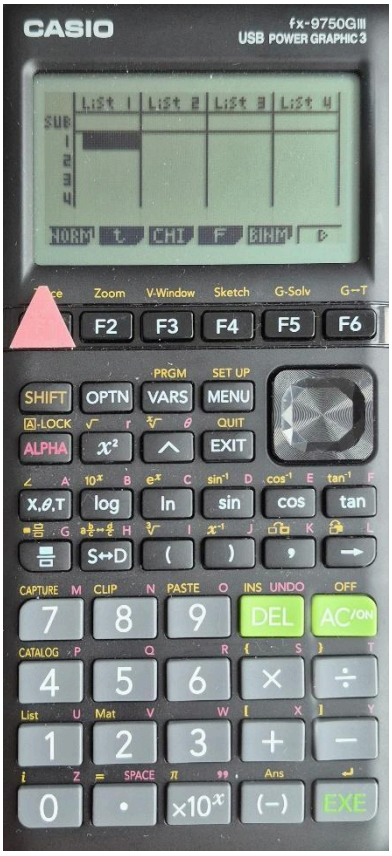


You now have your desired x-value.

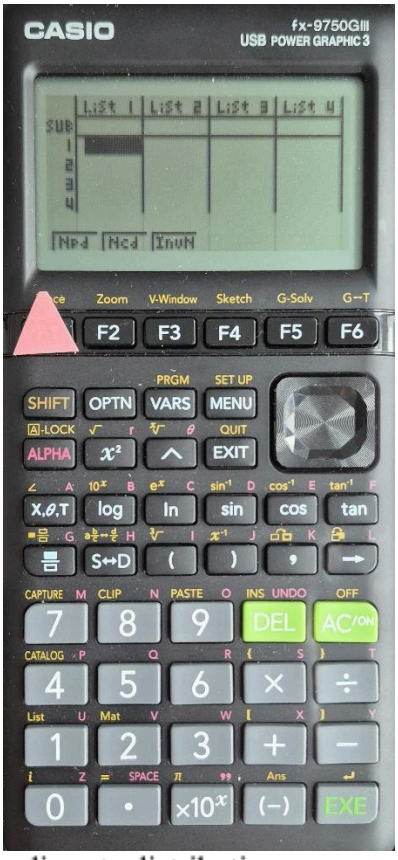
9. Normal Distributions – Npd



your distribution type.

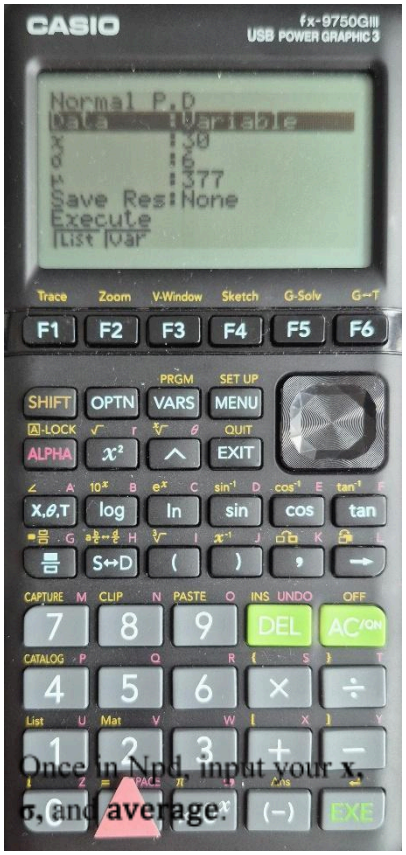


normal distribution.

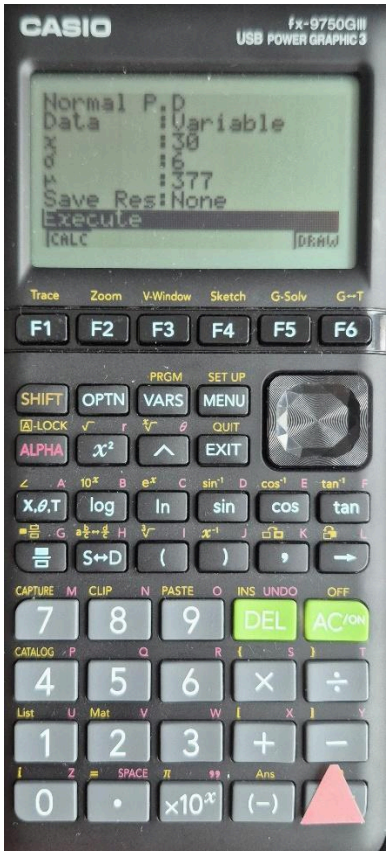


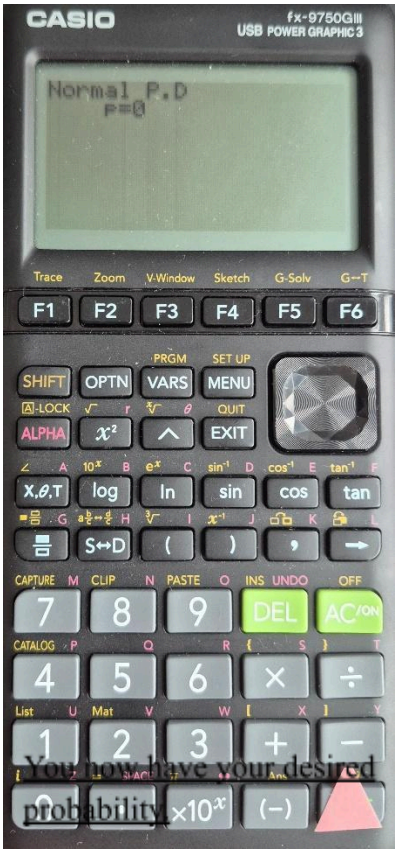
discrete distribution.

Note: Here, discrete means you are looking for the probability of an exact data point (x-value).



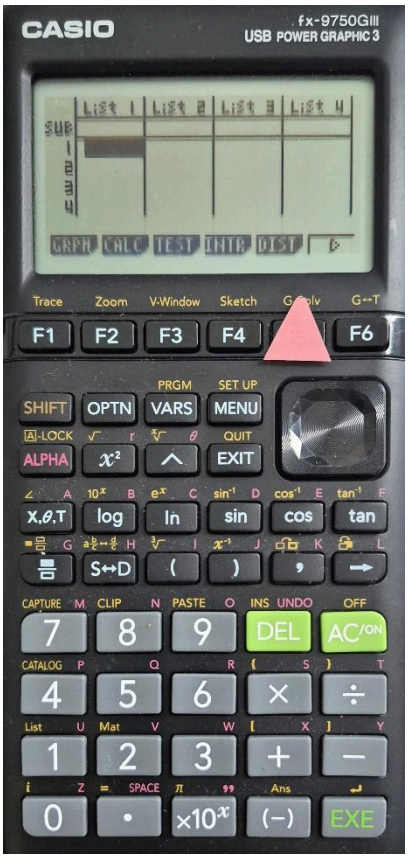
Once in Npd, input your x, σx and average.

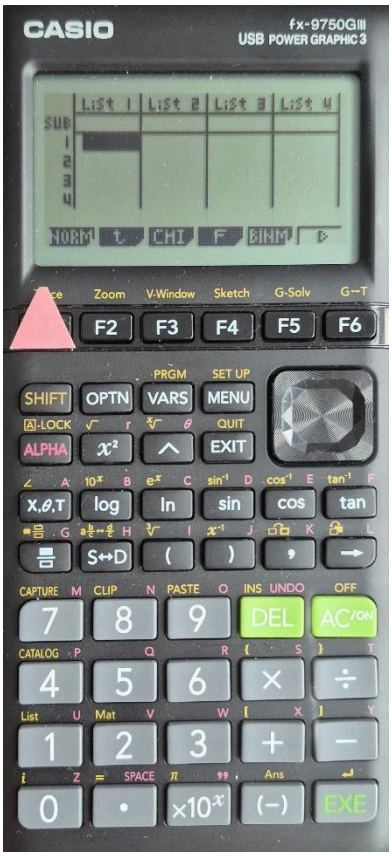


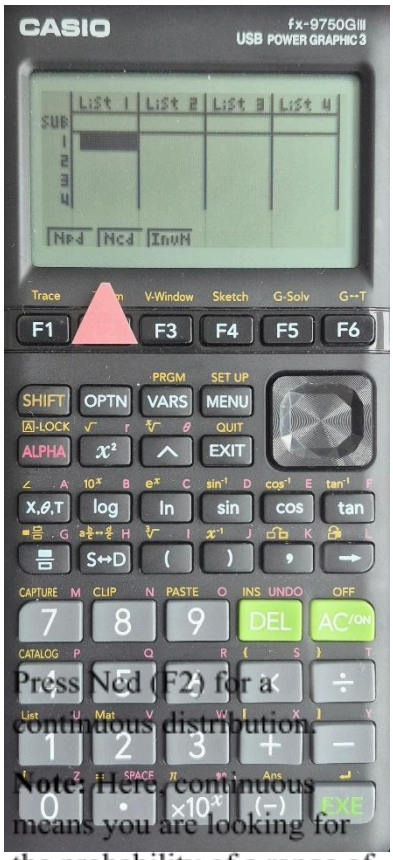


You now have your desired probability.

10. Normal Distributions - Ncd

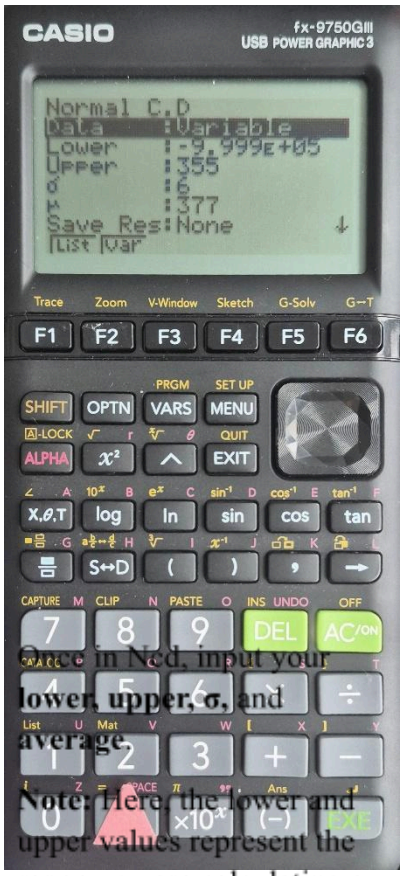






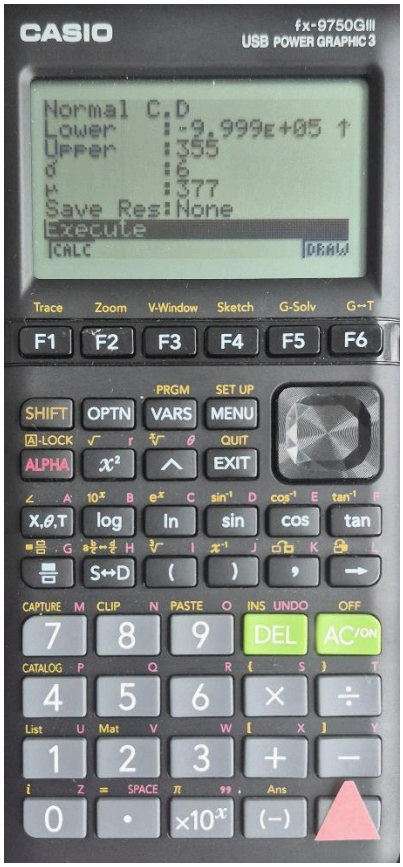
Press Ncd (F2) for a continuous distribution.

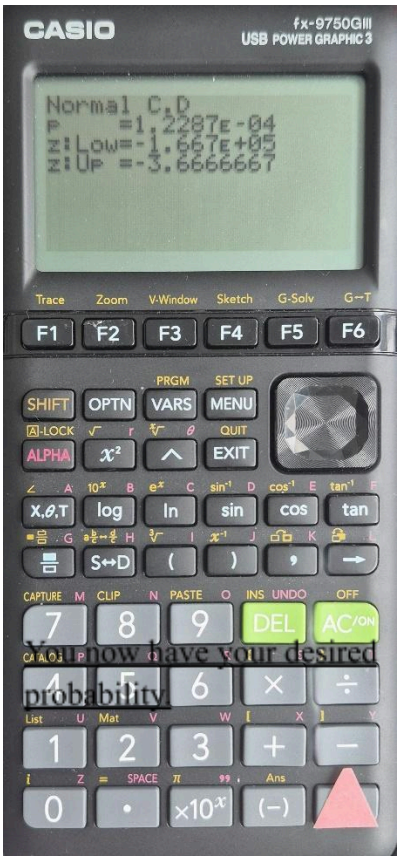
Note: Here, continuous means you are looking for the probability of a range of data points (x-values).



Once in Ned, input your lower, upper, σ, and average.

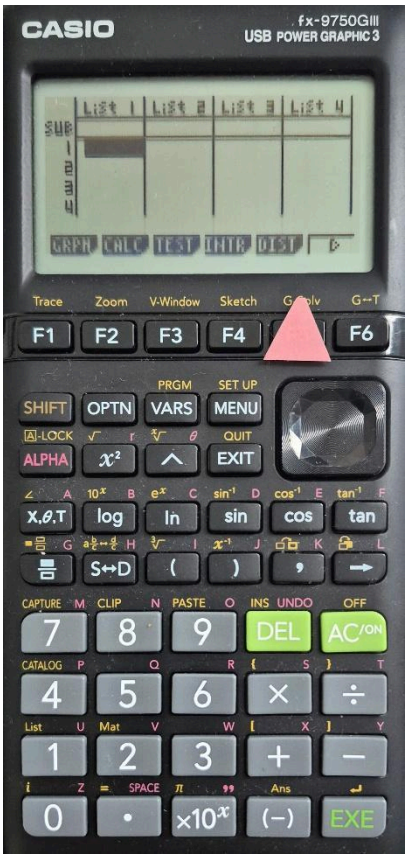
Note: Here, the lower and upper values represent the range you are calculating a probability for.

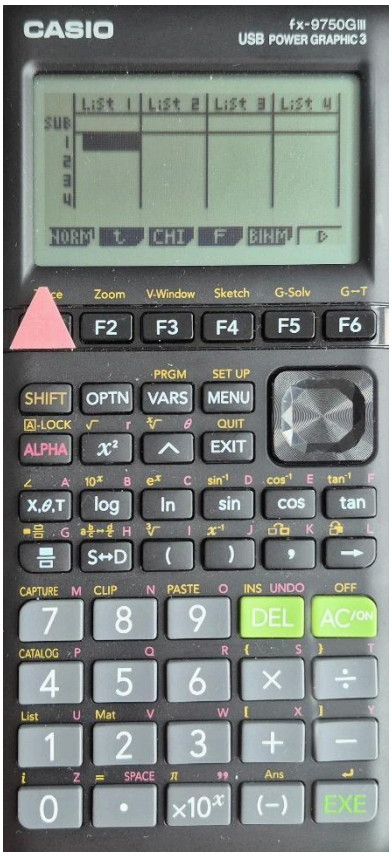


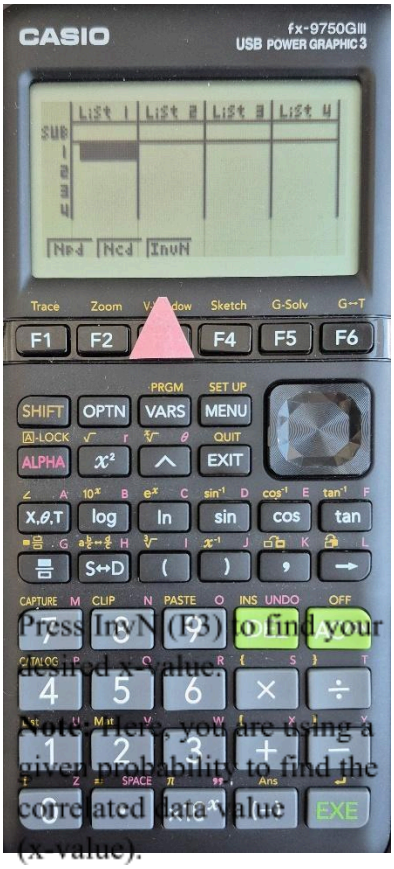


You now have your desired probability.

11. Normal Distributions - InvN





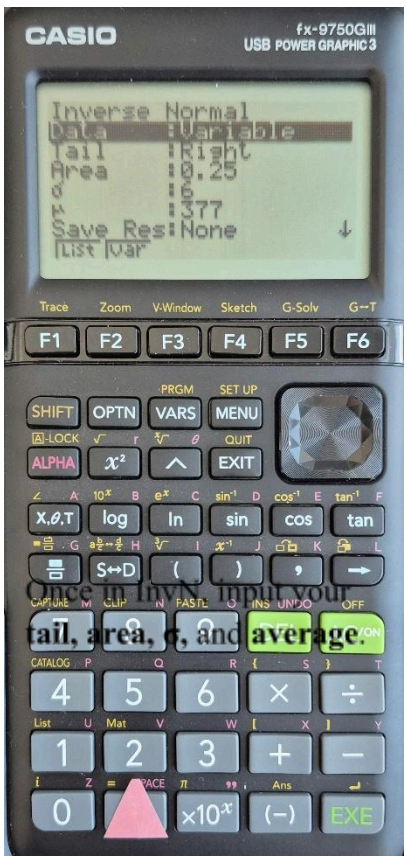


Press InvN (F3) to find your desired x-value.

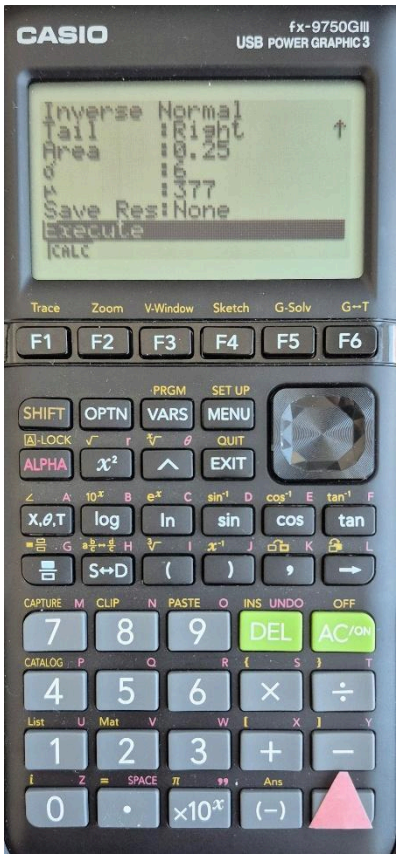
Note: Here, you are using a given probability to find the correlated data value (x-value).

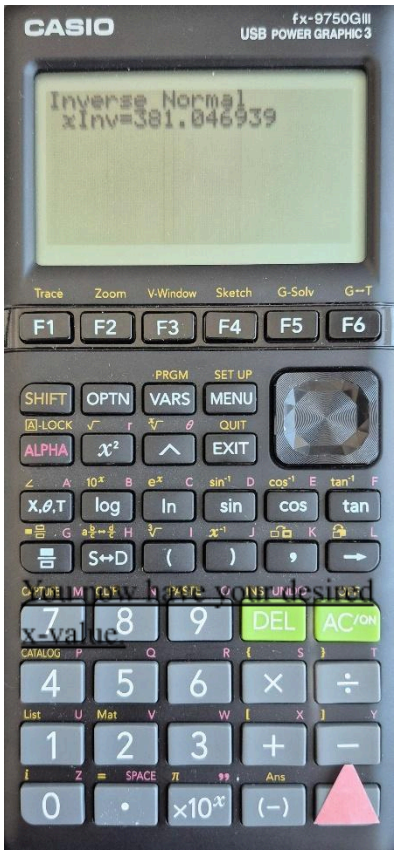
QMS 210: How to use your Calculator

TRAIN TO LEARN EFFECTIVELY: TIP SHEETS



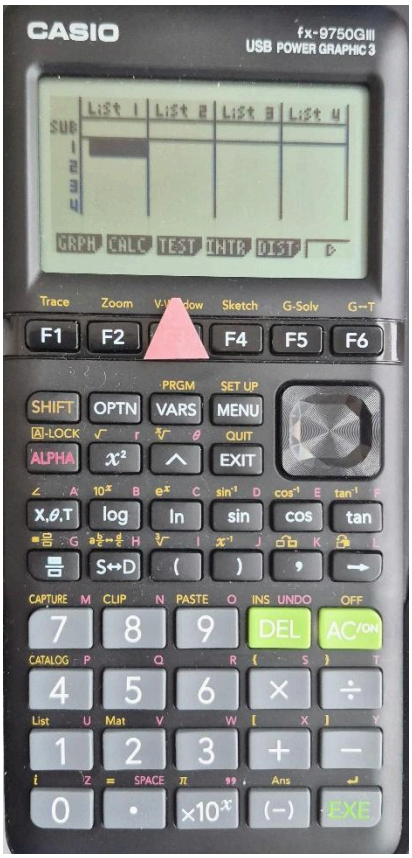
Once in Inv(), input your tail, area, σ, and average.

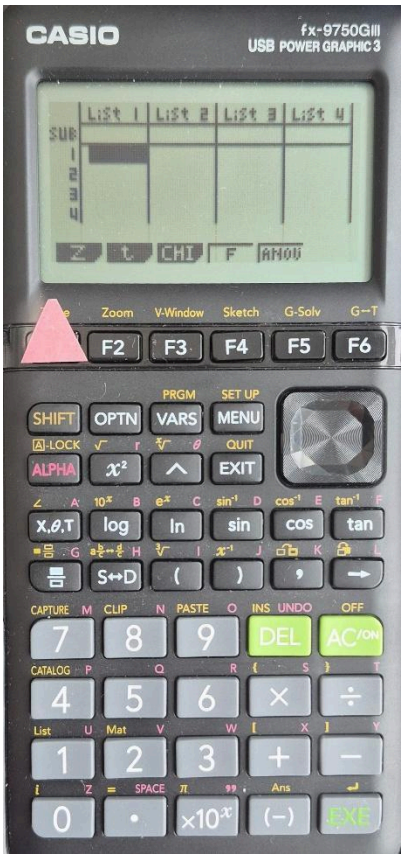


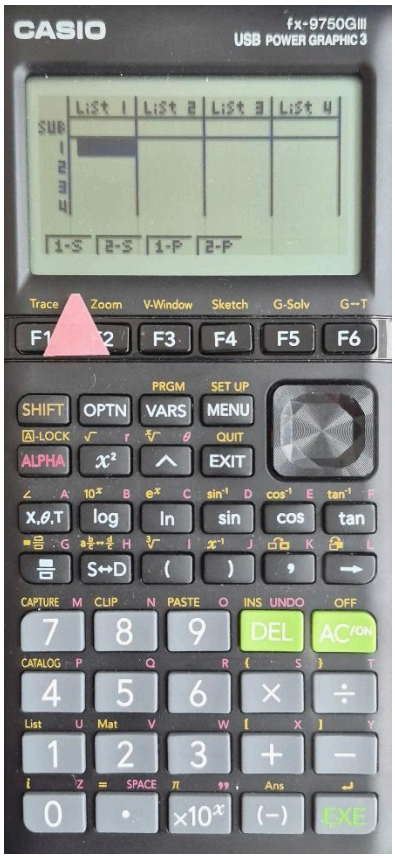


You now have your desired x-value

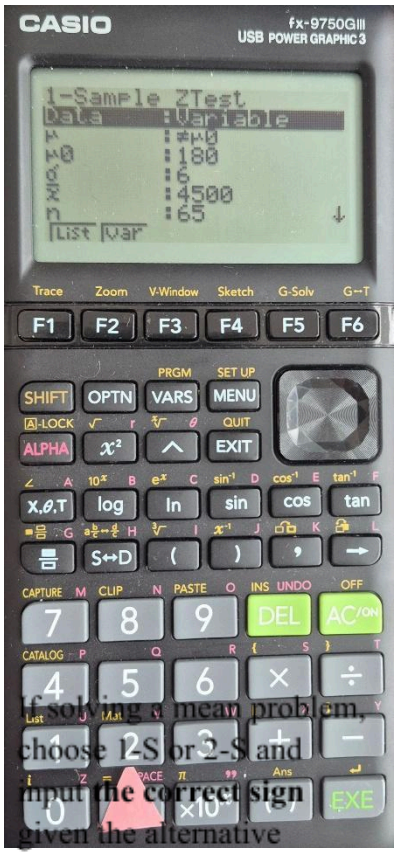
12. Finding Test Statistics – Z

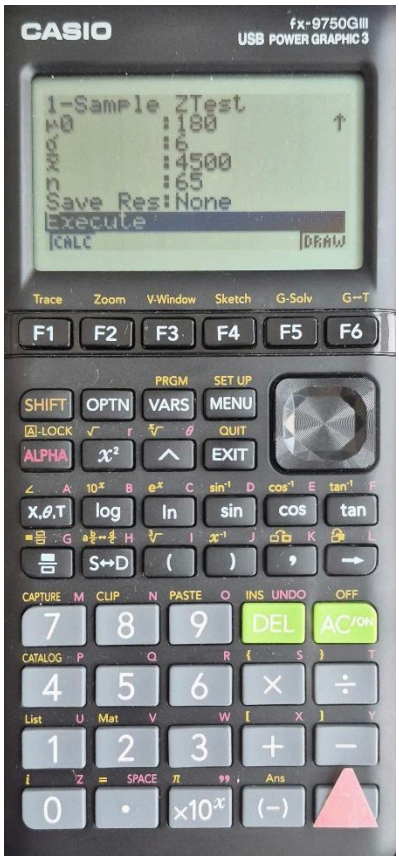


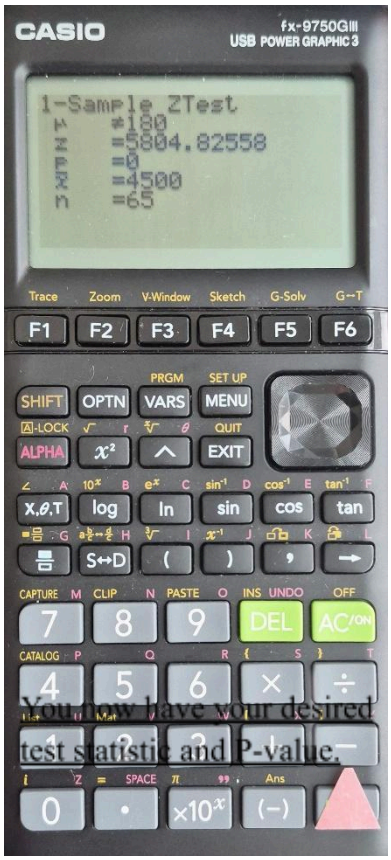




2-P: 2 Proportions (F4)

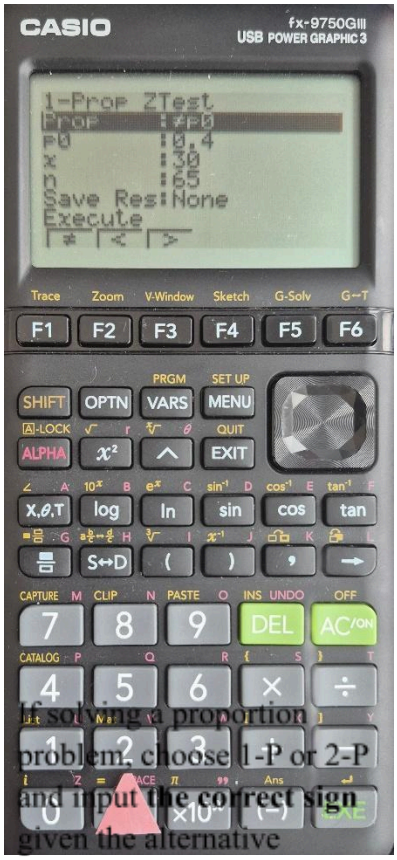




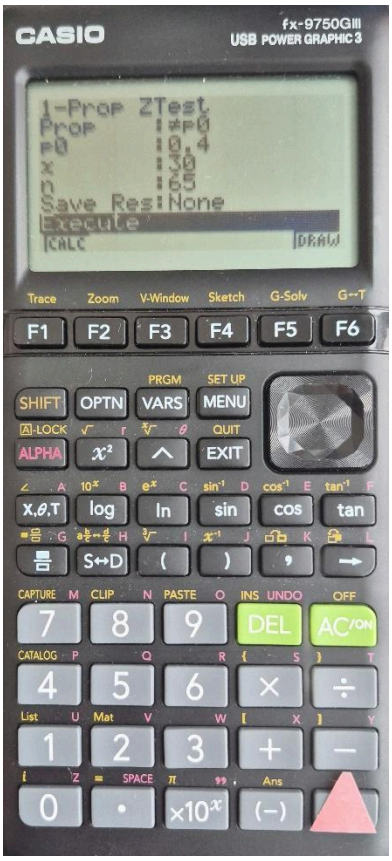


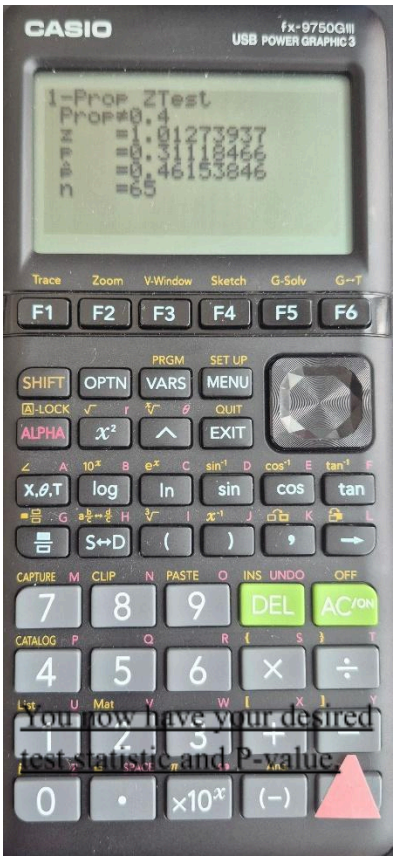
If solving a mean problem, choose 1-S or 2-S and input the correct sign given the alternative hypothesis, **value from the hypotheses,** each sample's **standard deviation (σ), average ($\bar{x}$), and size (n).**

You now have your desired test statistic and P-value.



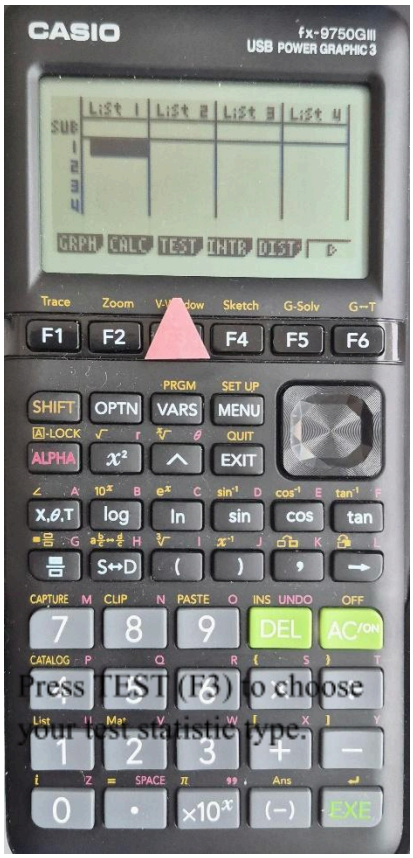
If solving a proportion problem, choose 1-P or 2-P and input the correct sign given the alternative hypothesis, **value from the hypotheses,** each sample's **x and size (n).**

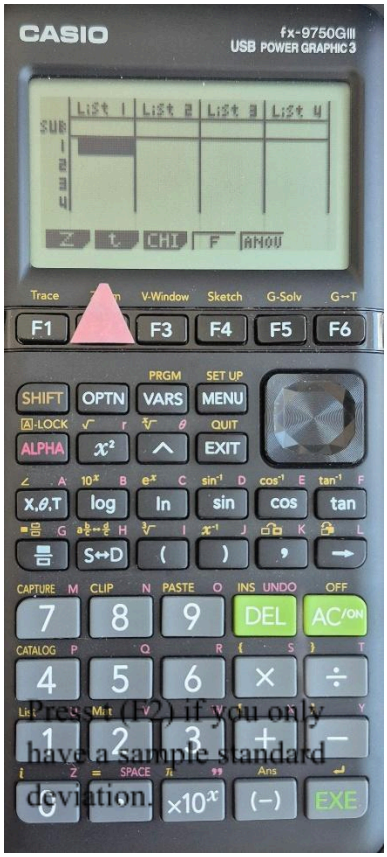


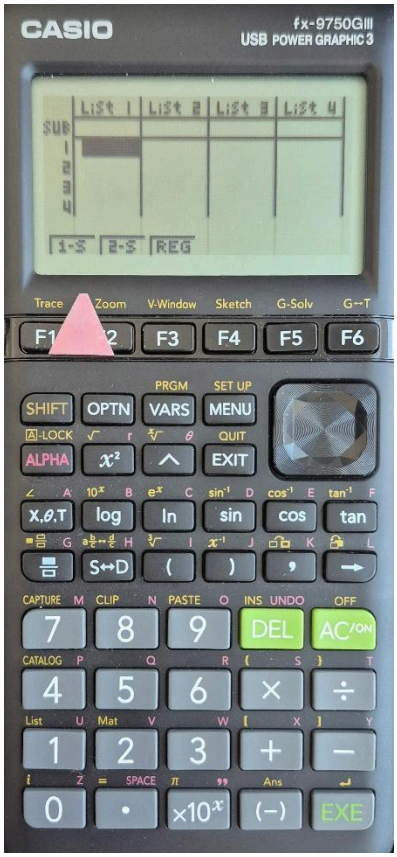


You now have your desired test statistic and P-value.

13. Finding Test Statistics – t

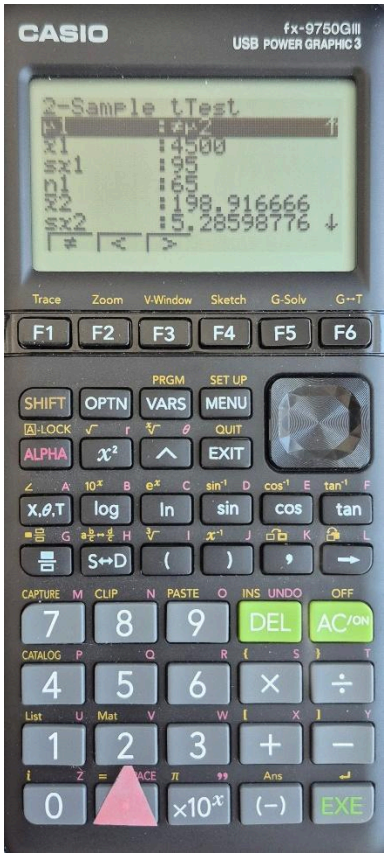






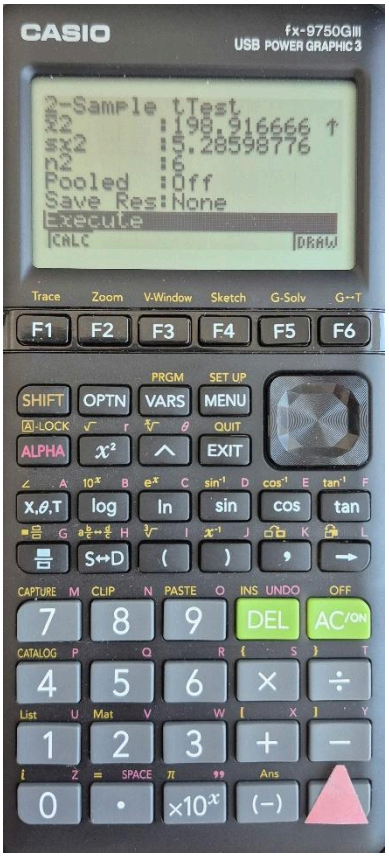
QMS 210: How to use your Calculator

TRAIN TO LEARN EFFECTIVELY: TIP SHEETS

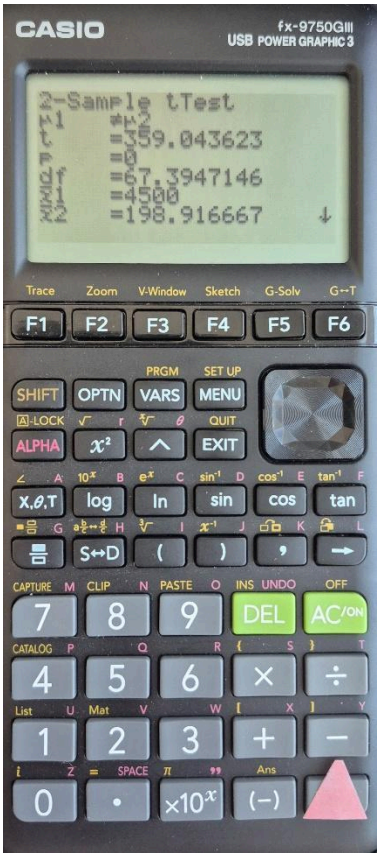


Input **the correct sign** given the alternative hypothesis, **value from the hypotheses** (1-S only), each sample's **standard deviation (sx), average ($\bar{x}$), and size (n).**

Note: Correctly indicate whether your sample(s) use **Pooled On or Off** before proceeding.

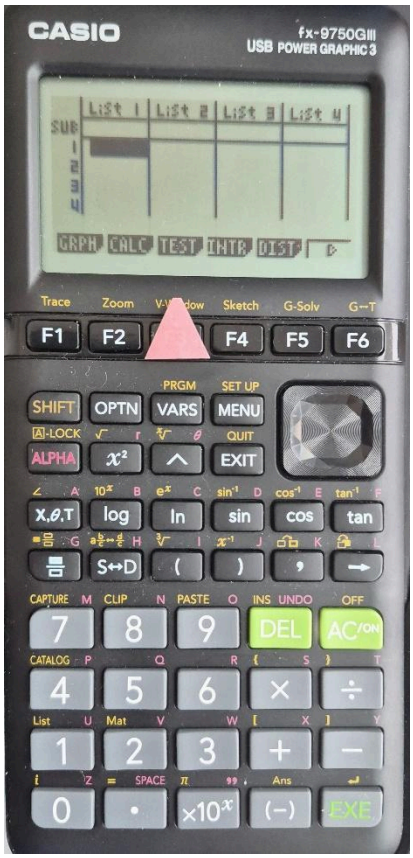


Execute (EXE) when done.

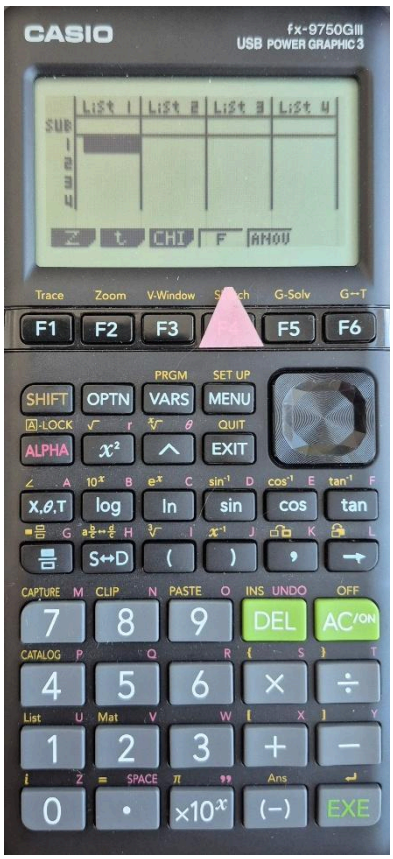


<u>You now have your desired test statistic and P-value.</u>

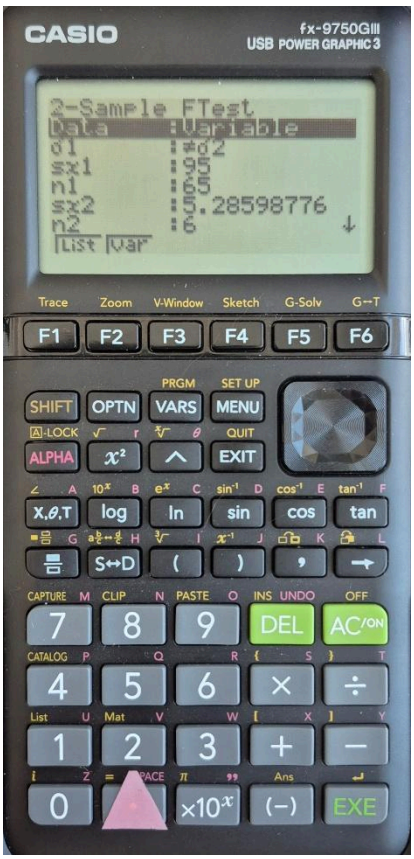
14. Test Statistics – F



Press TEST (F3) to choose your test statistic type.



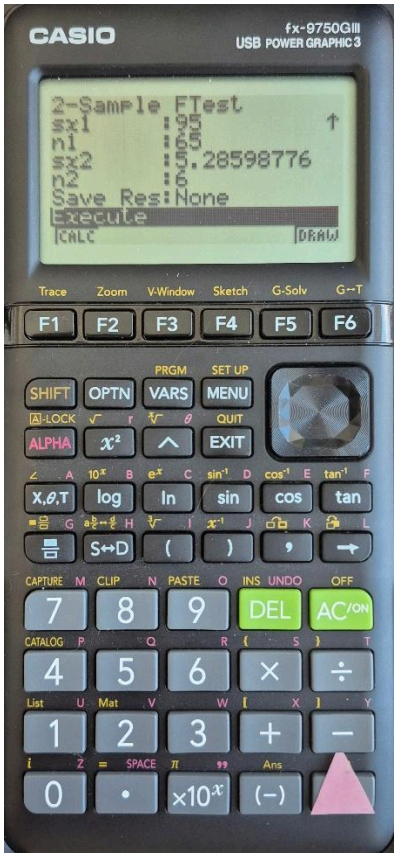
Press F (F4) for an F-test.



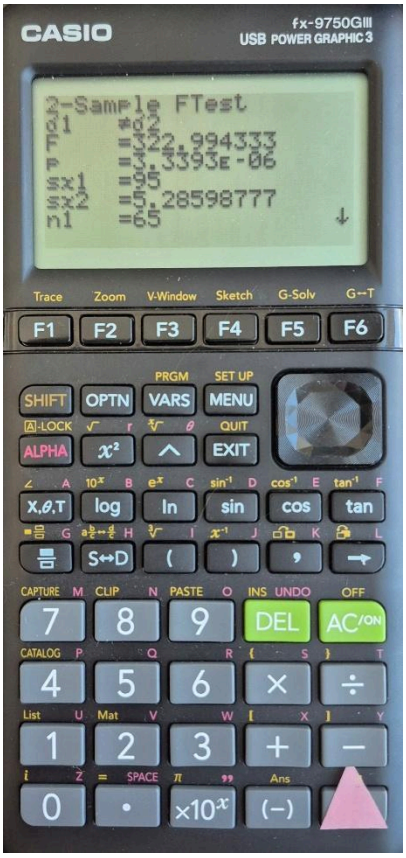
Input **an equal sign (=)** and each sample's **standard deviation (sx) and size (n).**

QMS 210: How to use your Calculator

TRAIN TO LEARN EFFECTIVELY: TIP SHEETS

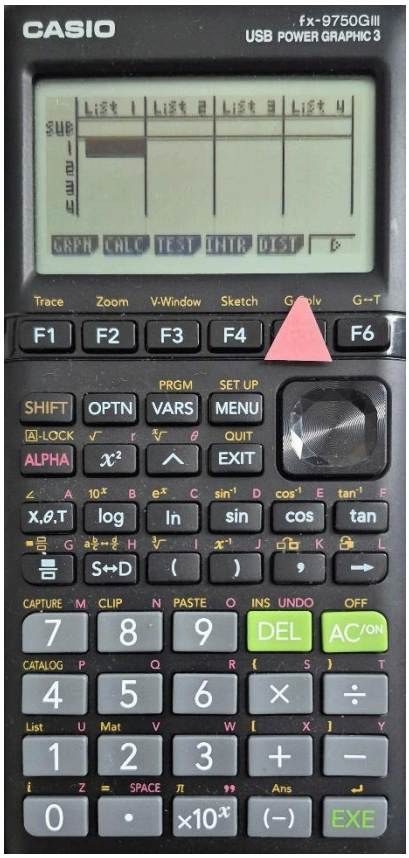


Execute (EXE) when done.

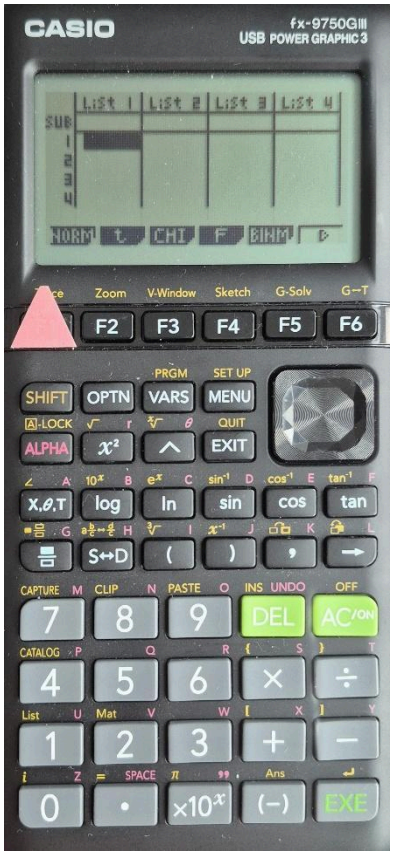


You now have your desired test statistic and P-value.

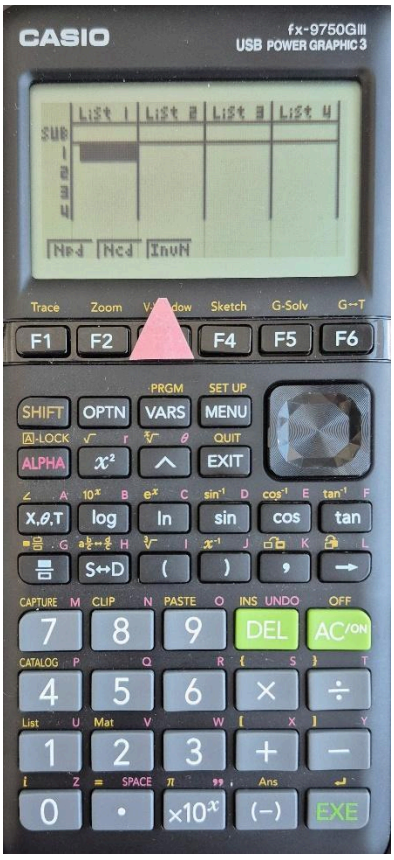
15. Critical Value(s) – Z



Press DIST (F5) to choose your distribution type.



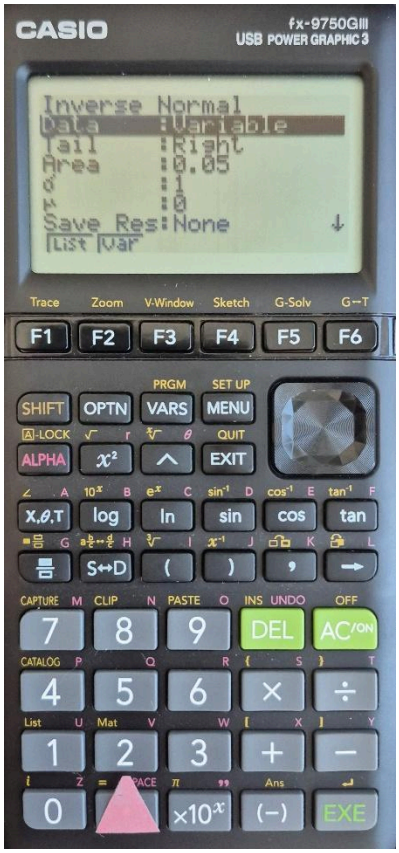
Press NORM (F1) for a normal distribution.



Press InvN (F3) to find your desired x-values (critical values).

QMS 210: How to use your Calculator

TRAIN TO LEARN EFFECTIVELY: TIP SHEETS



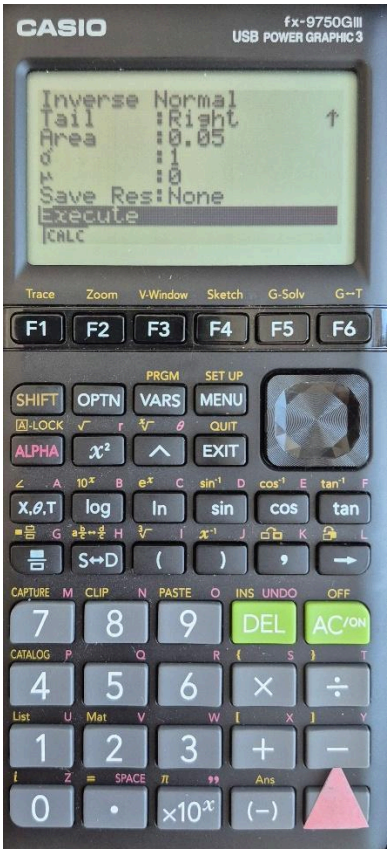
Input **the correct tail** given the alternative hypothesis, **area, standard deviation (σ),** and **average (μ).**

Tail Guide:

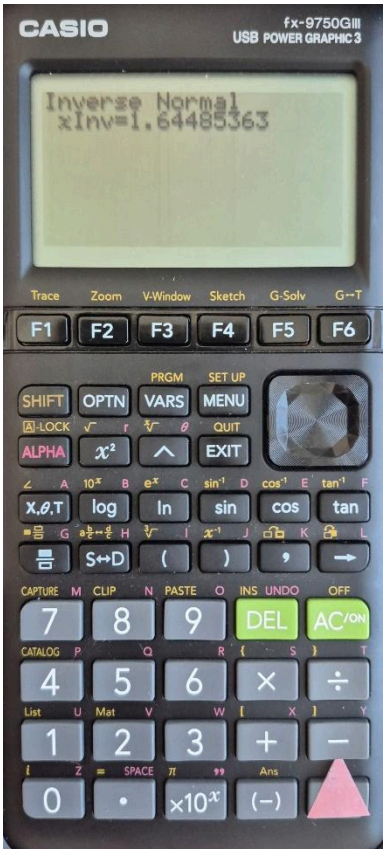
Right: > (alt sign)

Left: < (alt sign)

Center: ≠ (alt sign)

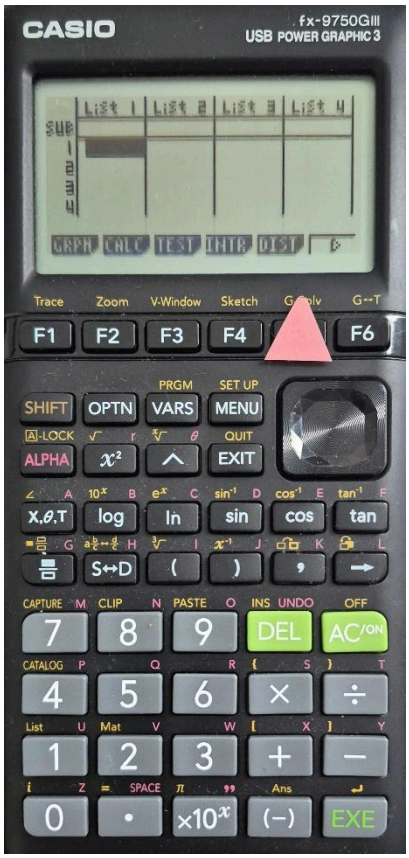


Execute (EXE) when done.

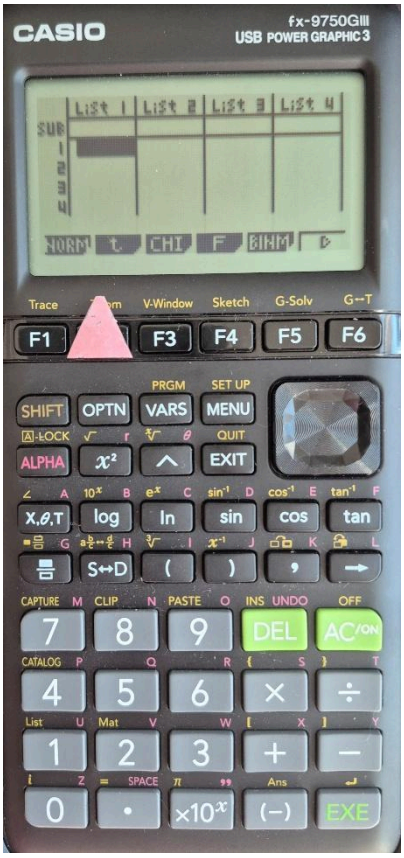


<u>You now have your desired critical value(s).</u>

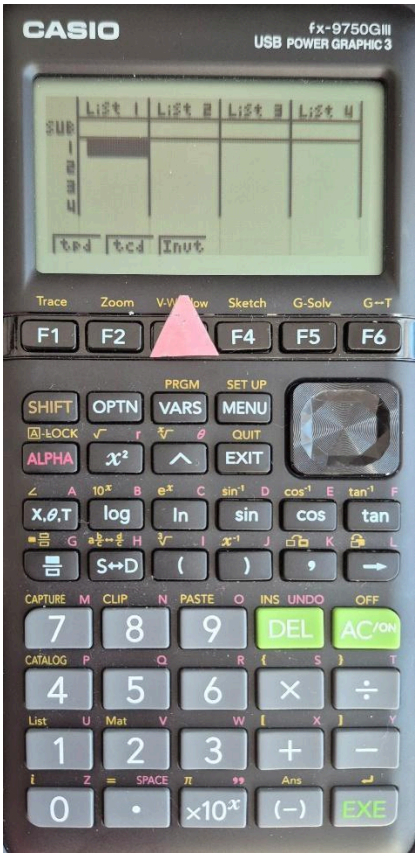
16. Critical Value(s) – t



Press DIST (F5) to choose your distribution type.



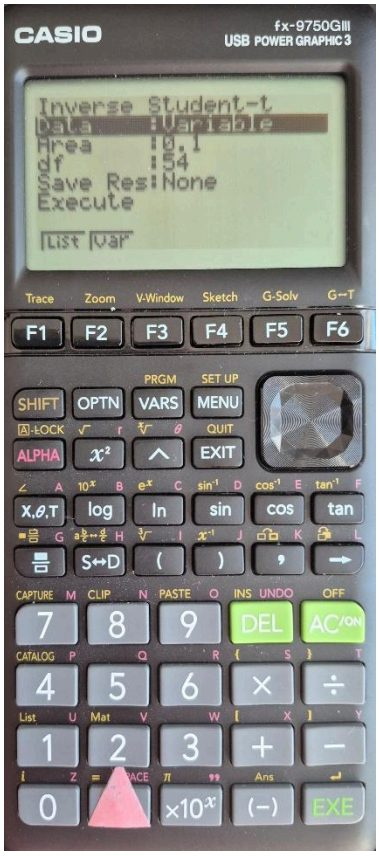
Press t (F2) for a t-distribution.



Press Invt (F3) to find your desired x-values (critical values).

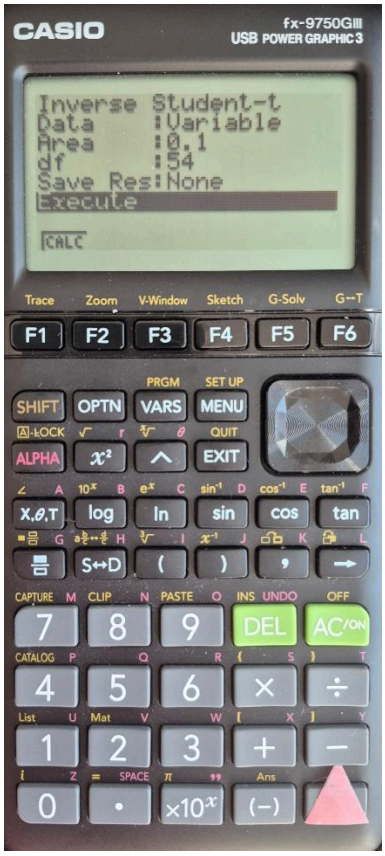
QMS 210: How to use your Calculator

TRAIN TO LEARN EFFECTIVELY: TIP SHEETS

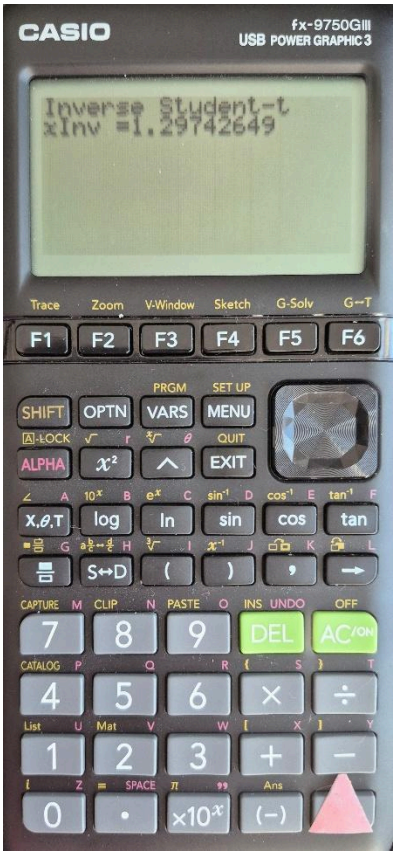


Once in Invt, input your **area** and **degrees of freedom (df).**

Note: Remember the calculator only moves from right to left.

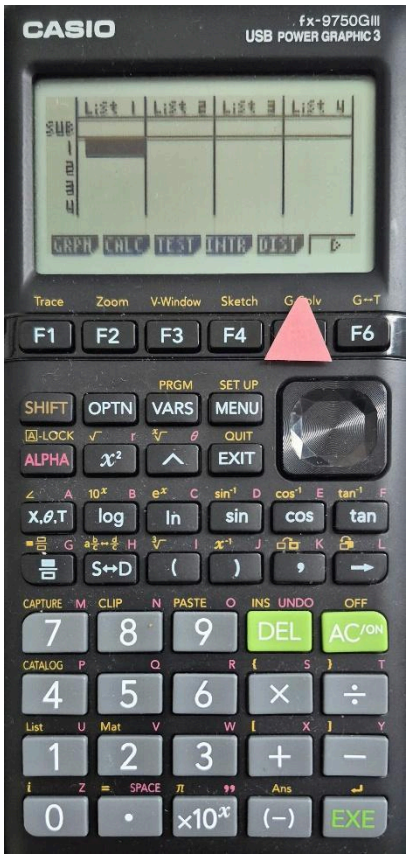


Execute (EXE) when done.

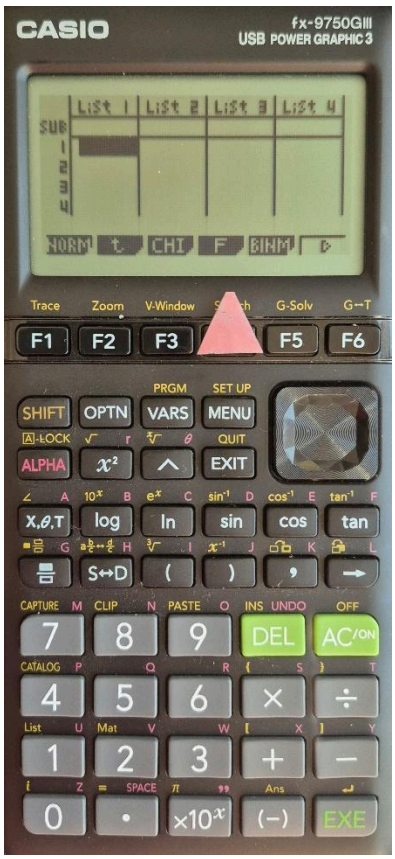


<u>You now have your desired critical value.</u>

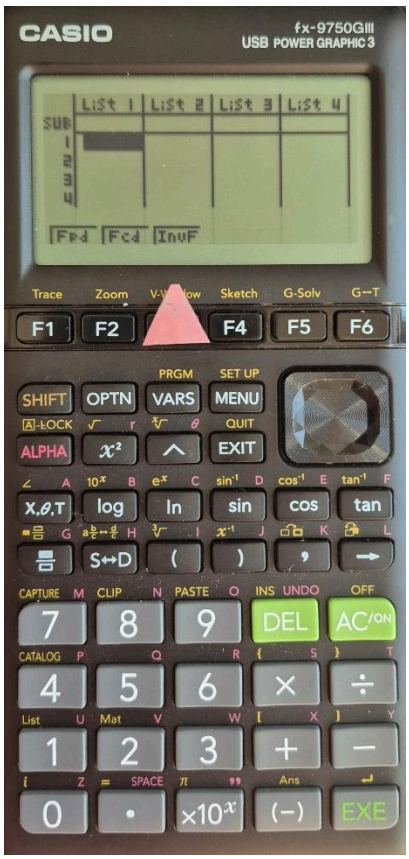
17. Critical Value(s) – F



Press DIST (F5) to choose your distribution type.



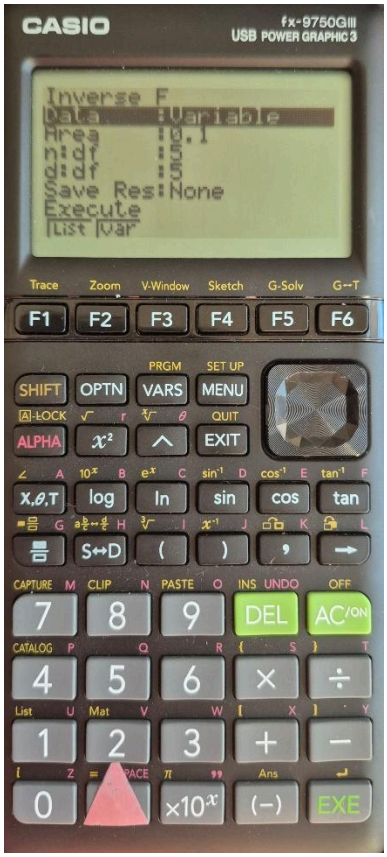
Press F (F4) for an F-distribution.



Press InvF (F3) to find your desired x-values (critical values).

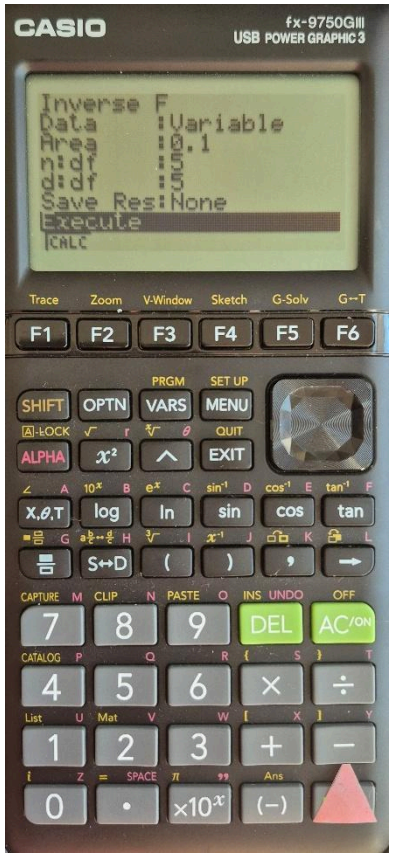
QMS 210: How to use your Calculator

TRAIN TO LEARN EFFECTIVELY: TIP SHEETS

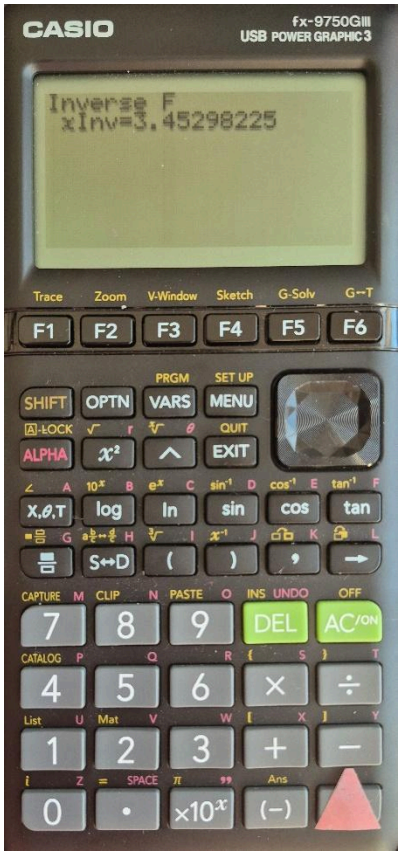


Once in InvF, input your **area**, **n:df,** and **d:df.**

Note: Remember the calculator only moves from right to left.

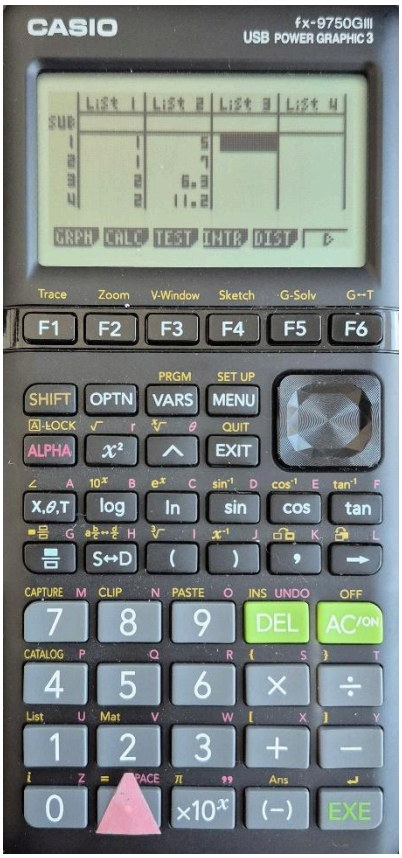


Execute (EXE) when done.

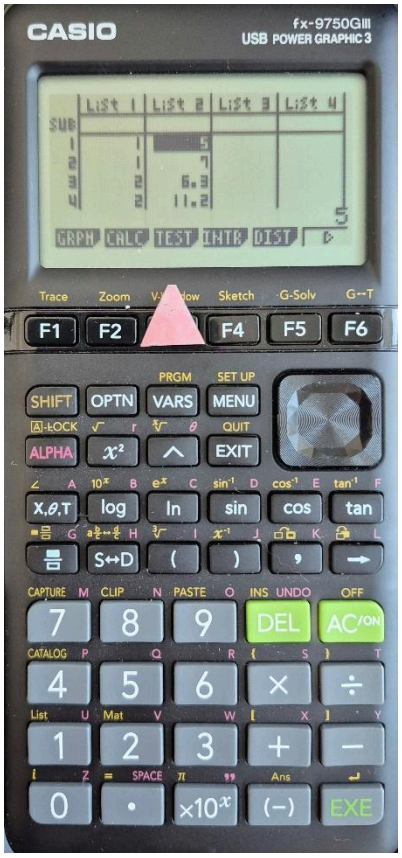


You now have your desired critical value.

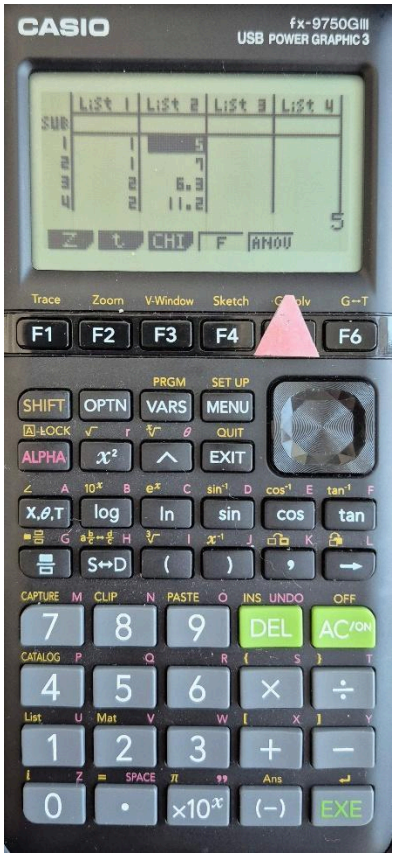
18. ANOVA



Correctly input your sample numbers into one list and your data into another.



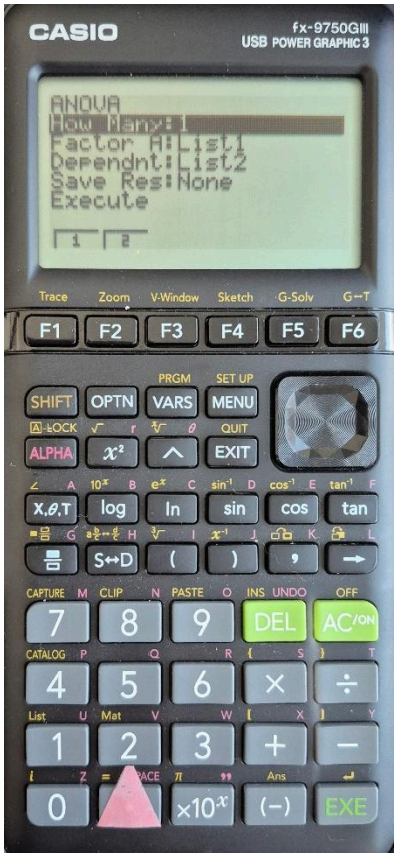
Press TEST (F3) to choose your test statistic type.



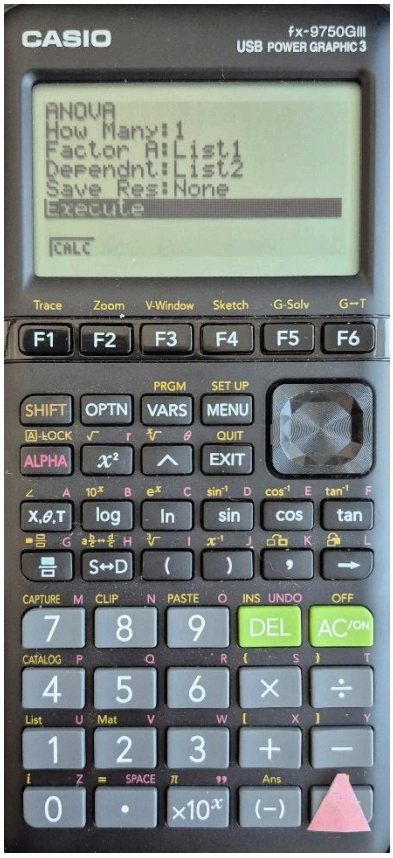
Press ANOV (F5) for an ANOVA.

QMS 210: How to use your Calculator

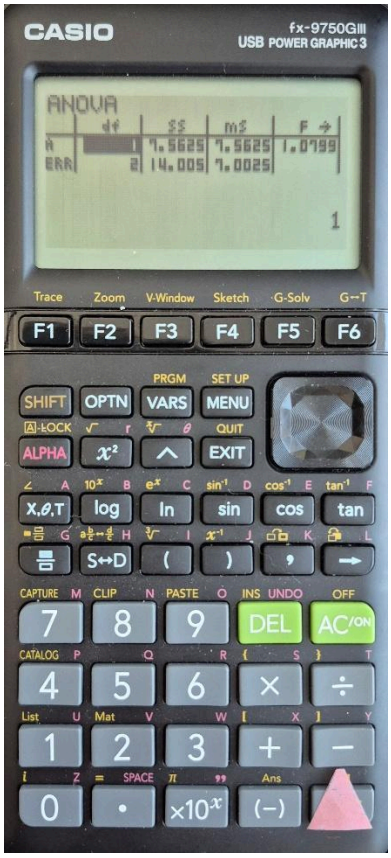
TRAIN TO LEARN EFFECTIVELY: TIP SHEETS



Indicate **how many** variables are being measured, the list with your **independent variable (Factor A),** and the list with your **dependent variable.**



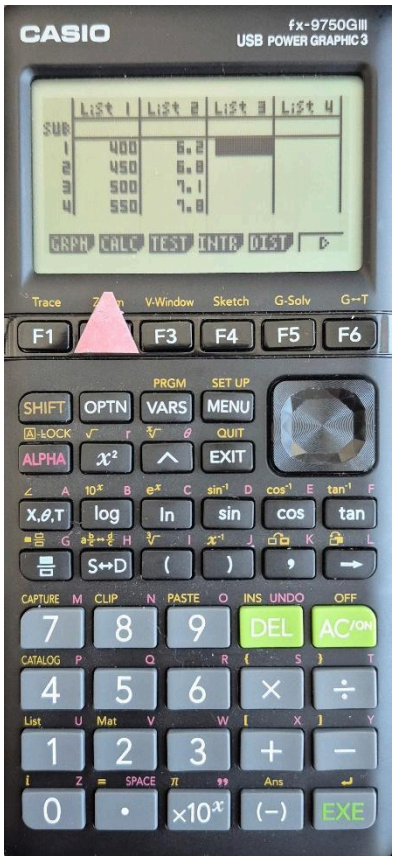
Execute (EXE) when done.



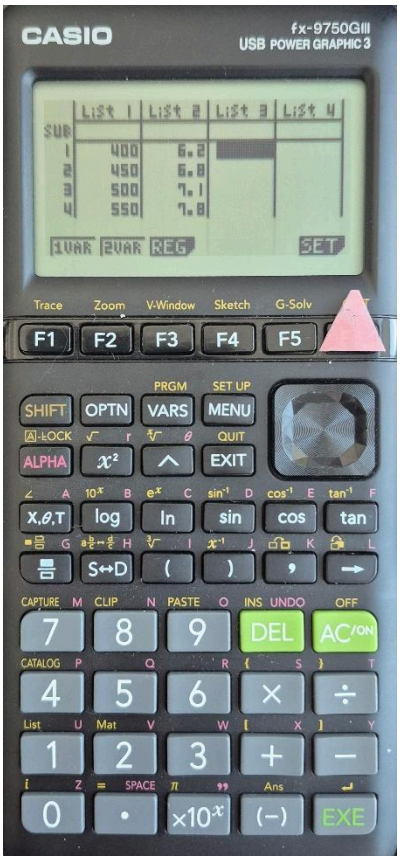
<u>You now have your ANOVA.</u>

Note: Use your keypad to view your p-value and F-test statistic on the right side of the ANOVA table.

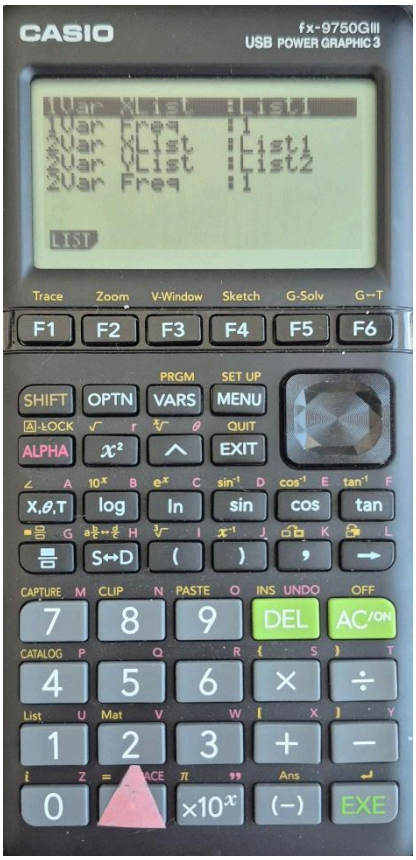
19. Simple Linear Regression



Press CALC (F2).



Press SET (F6).



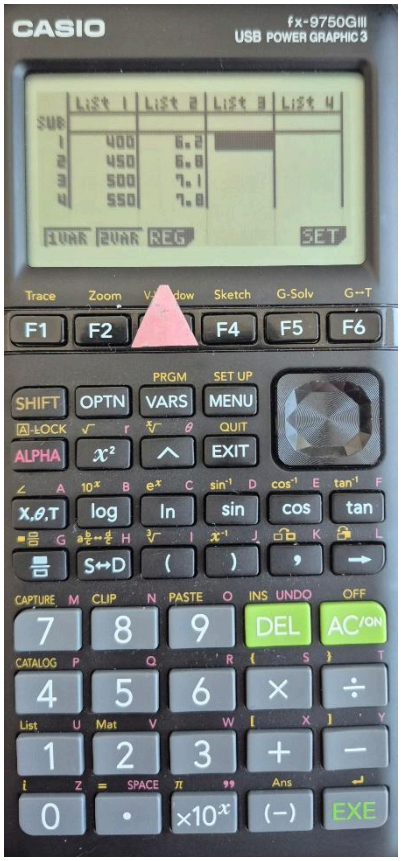
Here, you will tell your calculator where to find your data.

1Var Freq: Frequency for variable 1 – **Set to 1**.

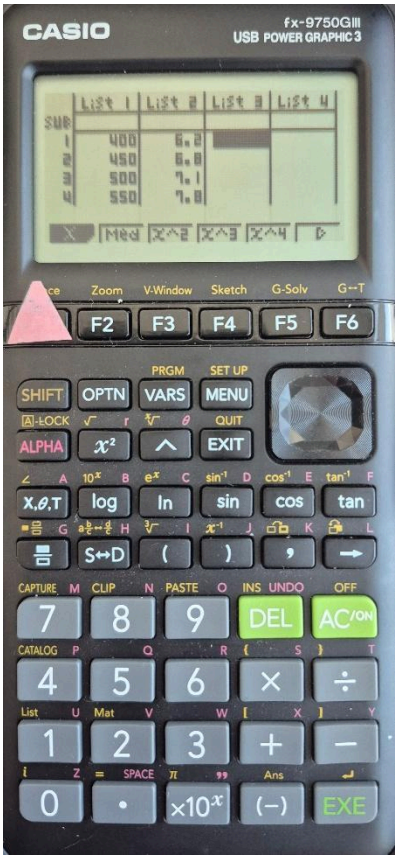
2Var XList: x-values (independent variable) – indicate corresponding list.

2Var YList: y-values (dependent variables) – indicate corresponding list.

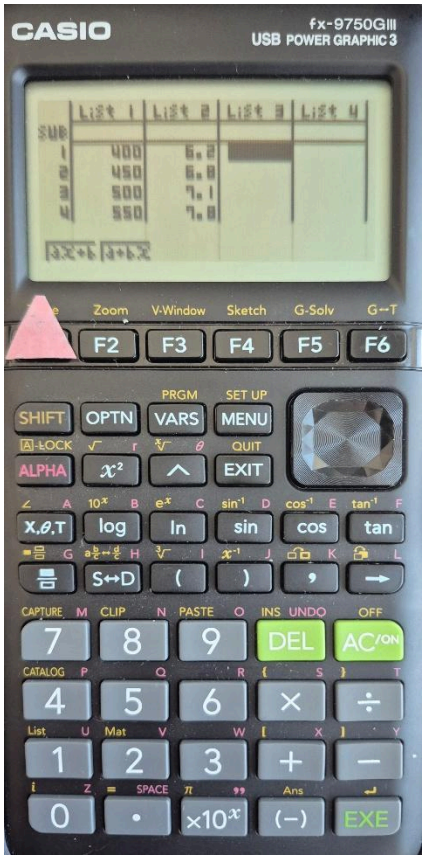
2Var Freq: Frequency for variable 2 – **Set to 1**.



Press REG (F3) for regression.



Press X (F1).

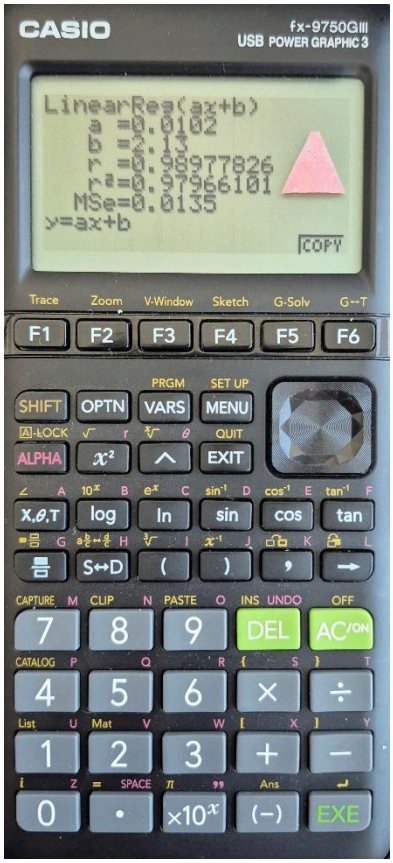


Indicate how you'd like your linear regression equation orientated. There is no right or wrong answer.

Choose (F1) or (F2).

QMS 210: How to use your Calculator

TRAIN TO LEARN EFFECTIVELY: TIP SHEETS



You now have your linear regression coefficients.

Note: The orientation of the equation will change which coefficients are represented by which variables. Check which one you used before building your equation.