"HOW-TO" WITH YOUR TI-84 CE GRAPHING CALCULATOR

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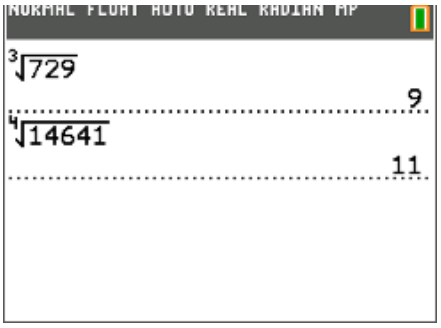
Part 1, HomeScreen, Patterns and Misadventures …. 31 March, 2022

Part 1
Stuart's 2nd turn

1. Find the following roots.

$\sqrt[3]{729}$ Press [math] 4:∛([7][2][9][enter]

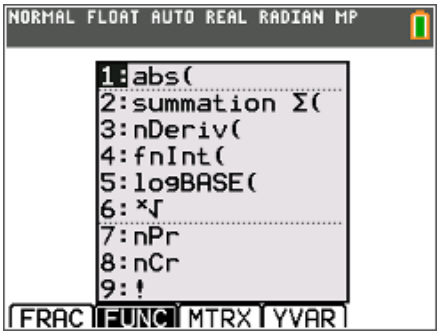
$\sqrt[4]{14641}$ Press [4][math] 5:ˣ√ [1][4][6][4][1][enter]



2. Various other functions follow:

|–4| Use shortcut menu to press [alpha] [f2] or

press [math] Num 1:abs(.

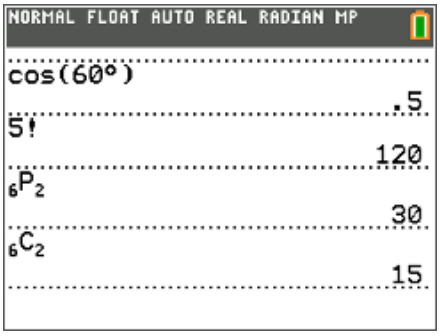


cos(60°) Press [cos][6][0][2nd][angle] 1:° [)]
(Makes no difference if in degree or radian mode)

5! Press [5][math] Prob 4:!

$_6P_2$ Press [6][math] Prob 2:nPr [2]

$_6C_2$ Press [6][math] Prob 3:nCr [2]



$_6P_2$ is a permutation. For example, how many possible ways can there be a President and Vice President elected out of a club of six members? If the six members are A, B, C, D, E, and F, then AB is a different outcome than BA. All outcomes are:

AB, AC, AD, AE, AF, BA, BC, DD, BE, BF,

CA, CB, CD, CE, CF, DA, DB, DC, DE, DF,

EA, EB, EC, ED, EF, FA, FB, FC, FD, DE

$_6C_2$ is a combination. For example, how many possible ways can there be a two member subcommittee chosen from the above club of six members? Then AB is no different than BA, since that represents the same subcommittee. So there would be fewer outcomes than for $_6P_2$ – in fact, in this case, half as many.

Part 1
Stuart's
2nd turn

CHOOSE A PRIZE

Activity Overview

This activity uses table building and recursion on the Home Screen to compare two patterns.

Concepts

- Number sense
- Recursion and patterns
- Problem solving

Compatible TI Technologies

- TI-84 Plus CE
- TI-84 Plus C Silver Edition
- TI-84 Plus Silver Edition (OS 2.55MP)
- TI-84 Plus (OS 2.55MP)

Introduction

Students at Lincoln High School have been playing the Math Know-How game. After the game, the winners will have 10 seconds to decide which prize to choose.

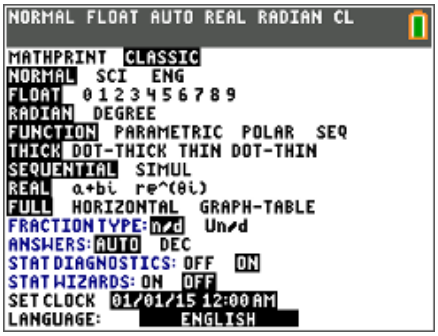
Prize A: Start with $100; add $100 each day for 20 days. Keep the money from the 20th day only.

Prize B: Start with $.01, double your money each day for 20 days. Keep the money from the 20th day only.

1. Investigate each prize numerically on the Home Screen to determine which "prize" should be chosen. After modeling Prize A and Prize B, investigate both prizes together in one "table".

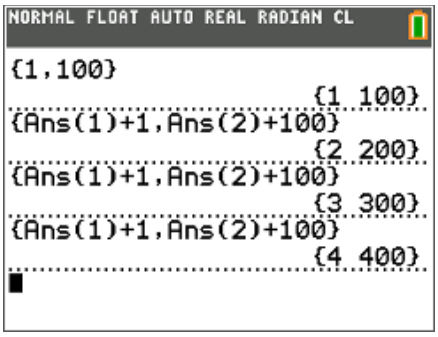
   Press [mode] , highlight CLASSIC, and press [enter].

   Classic is chosen here so all of the extra-long commands can be seen. MathPrint is programmed so text scrolls off the screen, while Classic uses "Wrap Around".

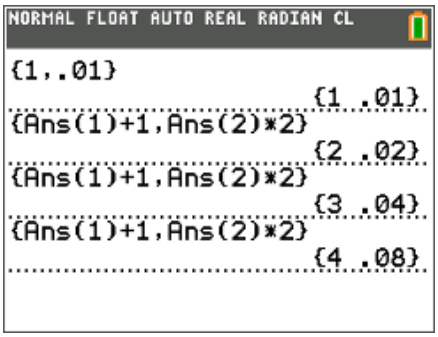


Part 1
Stuart's
2nd turn

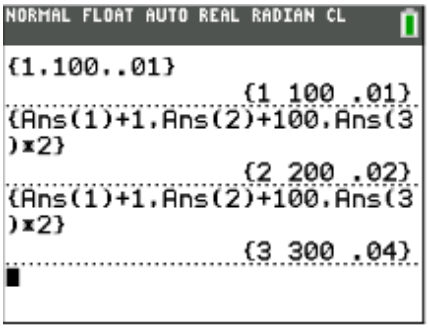
2. Model Prize A with a 2 element list. Use curly brackets to define a list. Let the first element be the day, and let the 2nd element be the money.
3. Start by defining the initial conditions: on day 1 the prize is $100.
4. Define 2 recursive functions by using the previous answer (as seen in the figure at right. The [ans] command is the 2nd function above the [(-)] key. Pressing [enter] repeatedly executes the previous entry line over and over.



5. Model Prize B.

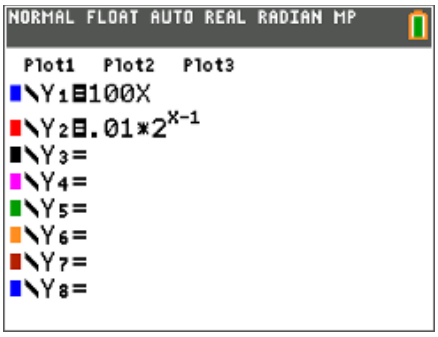


6. Model both prizes in one "table" by creating a 3 element list.

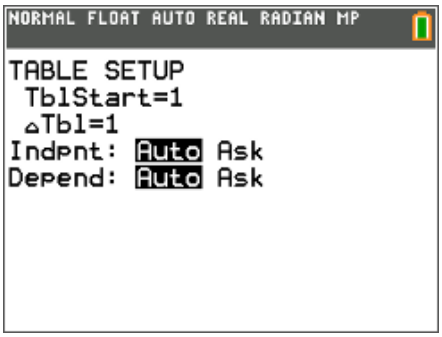


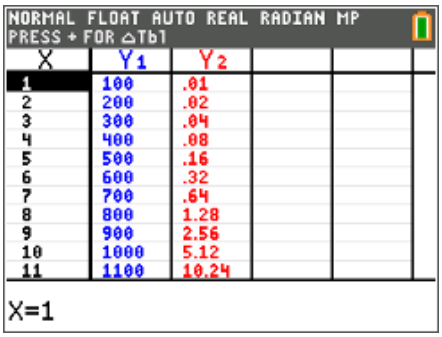
Part 1
Stuart's
2nd turn

7. Press [mode] and change the display back to MathPrint. Press [y=] and enter your equations. These equations must be defined explicitly, rather than recursively.



8. Press [2nd] [tblset] to set the table to start at 1 and increment by 1.





X	Y1	Y2
1	100	.01
2	200	.02
3	300	.04
4	400	.08
5	500	.16
6	600	.32
7	700	.64
8	800	1.28
9	900	2.56
10	1000	5.12
11	1100	10.24

9. Then press ` [table] to confirm the values in the Table match the values on the home screen. Scroll through the table to the 20th day to determine which payment method you prefer. Surprised?

- Instead of getting to keep only the prize for the 20th day, what if you were able to keep all the money for all 20 days? Which prize would you choose?