# Set of instructions to Texas Instruments TI-84 Plus CE-T Graphing calculator.

Set of content:

- 1. Fractions
- 2. Missing digit
- 3. Probability
- 4. Quadratic equation
- 5. Graphs
- 6. Linear regression
- 7. Geography app
- 8. The finance app
- 9. Periodic table
- 10. Downloading games

#### Decimal fractions and vulgar fractions

1. Sometimes when do some operations on fractions you may get a result that is unsatisfying.



2. When you need you result in different fraction the only thing you have to do is pressing [alpha] and [y=]. And then choose the 4<sup>th</sup> option [4].

NORMAL FLOAT AUTO REAL RADIAN MP	NORMAL FLOAT AUTO REAL RADIAN MP 🔲
(1/2)+(3/7)+(11/19)	(1/2)+(3/7)+(11/19)
1.507518797	1.507518797
	Ans⊧F∢⊧D∎
1:n/d 0/0	
2:Un/d 00/0	
3:▶n/d∢▶Un/d	
4∎▶F∢▶D	
FRACIFUNC MTRX YVAR	

3. Press [enter] and your result will appear in vulgar fraction.

NORMAL	FLOAT AUTO	REAL RADIAN	MP 🚺
(1/2)	+(3/7)+	(11/19)	F1 0707
Ans≯F	↔D	1.50/	518/9/
			<u>401</u> 266

4. You can also do it in opposite way.

NORMAL FLOAT AUTO REAL RADIAN MP	NORMAL FLOAT AUTO REAL RADIAN MP	NORMAL FLOAT AUTO REAL RADIAN MP
(1/2)+(3/7)+(11/19)	(1/2)+(3/7)+(11/19)	(1/2)+(3/7)+(11/19)
1.507518797	1.507518797	1.507518797
Ans⊁F∢⊁D	Ans⊁F∢⊁D	Ans⊁F∢⊁D
401	401	<u>401</u>
266	266	266
1:n/d 2:Un/d 3: h/d(+)Un/d 4: +F(+)D FREE FUNC   MTRX   YVAR	Ans⊁F∢⊁D	Ans≯F∢≯D 1.507518797 ■

#### Missing digit

1. I think many times you have this problem. You write an operation but you've missed one digit. And what? You need to write all operation again?



2. No more. Copy the operation by pressing [enter] on it and in the new one move the cursor in the correct place. The new digit will appear on the left from it.



3. Now press [2<sup>nd</sup>] plus [del] – int. The underscore will appear.



4. Now there's no more to do than just putting the missing digit, in this case [1]

3*15/(6+17)*\16+8	3*15/(6+17)*\16+8
15.82608696	15.82608696
3*15/(16+17)*\16+8	3*15/(16+17)*\16+8
	13.45454545

#### Probability

1. In your calculator there are a lot of ways to make a simulation. The 1<sup>st</sup> thing to do is pressing [apps] and then choose [0] for Prob Sim.

NORMAL FLOAT AUTO REAL RADIAN MP	💪 PROB SIM APP 🚺
APPLICATIONS	Simulation
5↑EasyData	1: Toss Coins
6:Hub	2:Roll Dice
7:Inequalz	3:Pick Marbles
8:Periodic	4:Spin Spinner
9:PlySmlt2	5:Draw Cards
0:Prob Sim	6:Random Numbers
:SciTools	
:SmartPad	
:Transfrm	OK Í Í SEED ABOUTÍQUIT

2. There are 6 ways to do a simulation and let's see how it would looks like with cards. Press [5].

M PROB SIM APP	PROB SIM APP	
Simulation 1:Toss Coins 2:Roll Dice 3:Pick Marbles 4:Spin Spinner 5 Draw Cards 6:Random Numbers		DRAW CARD
	ESC DRAW SET	DATA CLEAR

3. By pressing [window] reserved for DRAW one card from a shuffled deck is going to be removed.



4. If you want to change something in your deck you have an ability to do 3 thing. Press [zoom] – SET and here you can choose if you want to use multiply decks. You can also choose if picked card is going to be removed from the deck or it is going to come back and can be find again. The 3<sup>rd</sup> option is to change the size. You can pick 52 (normal deck) or 32 (7-A).

PROB SIM APP	0
Settings Decks: 1 2 3 Replace: Yes No Deck Size: 52 22	
Deck 512e. 52 52	

## **Quadratic Equation Program**

Probably from the early beginning you will have this problem:

How to solve quadratic equation?

 Install Quadratic Equation program from https://www.ti84calcwiz.com/mathprograms/quadratic-formula-solver/.



2. Drag all downloaded files into your calculator.



3. Open up your calculator and press [prgm] and choose program named "QUADSOLV".



4. Enter coefficients a, b and c (If any of these terms are not present, just type in 0 as the coefficient).

NORMAL	FLOAT	AUTO	REAL	DEGREE	MP	I
AX2+E A:7 B:5	3X+C					
C:1						

5. The results should be seen on your screen.

NORMAL	FLOAT	AUTO	REAL	DEGREE	MP	
AX2+E A:7 B:1 C:0	3X+C					
X= 0 X= -0	).142	2857	1429	9	Don	ie.

6. If you would like your calculator to provide you with imaginary solutions, be sure to enter a+bi mode by pressing the [Mode] button and selecting a+bi mode.

NORMAL FLOAT AUTO a+bi DEGREE MP 👘
NUMBER TYPE: REAL/COMPLEX 🛄
MATHPRINT CLASSIC
NORMAL SCI ENG
FLOAT 0123456789
RADIAN <u>Degree</u>
FUNCTION PARAMETRIC POLAR SEQ
THICK DOT-THICK THIN DOT-THIN
SEQUENTIAL SIMUL
REAL <mark>a+bi</mark> re^(0i)
JULL HORIZONTAL GRAPH-TABLE
FRACTION TYPE: nzd Unzd
ANSWERS: AUTO DEC
STATDIAGNOSTICS: OFF ON
STATWIZARDS: ON OFF
SET CLOCK 01/21/15 09:14 PM
LANGUAGE: ENGLISH

Viewing the Graph and Table Simultaneously

1. To see your graph and the table at the same time firstly you need to have a function. Press [y=] and type your equations.



2. Press the [mode]. About midway through the screen you will see a row that says FULL HORTIZONTAL GRAPH-TABLE. Choose the 3<sup>rd</sup> by pressing [enter]



3. Now press [graph] and you will see your graph and table simultaneously.



4. If you want see other values in the table press the [2<sup>nd</sup>] and [graph]. Then you navigate using arrows



## Linear regression

1. Press [stat] and choose the first option [Edit...].

NORMAL FLOAT AUTO REAL RADIAN MP	
EDIT CALC TESTS Edit… 2:SortA( 3:SortD( 4:ClrList 5:SetUpEditor	

2. In the first column [L1] enter how many numbers you want to have ( in that case it's 10 ). In second one [L2] enter numbers that you've got ( the order doesn't matter ).

L1	L2	Lз	Lu	Ls	2
1	15				-
2	10				
3	12				
4	17				
5	16				
6	14				
7	18				_
8	13				_
9	15				_
10	16				

3. After entering the data, again press [stat], right arrow to [CALC] and choose 4<sup>th</sup> option [LinReg(ax+b)].



4. In [LinReg(ax+b)] choose [Store RegEQ] by pressing [vars] button (NOT [enter] !).

NORMAL	FLOAT	AUTO	REAL	RADIAN	MP	Î
Xlis Ylis Fre Stor Calo	st:L: st:L: aList re Re culat	INRE 2 2 2 2 2 2 2 9 5 0 2 0 2 0 2 0 2 0 2 0 2 0 0 0 0 0 0 0	9(a) :: <b> </b>	х+ь)		

5. In next step, arrow right to [Y-VARS] and choose 1<sup>st</sup> option [Function...]



6. In [FUNCTION] choose  $1^{st}$  option [Y<sub>1</sub>].

NORMAL FL	OAT AUTO	REAL	RADIAN	MP	
FUNCTIO	ON				
18Y1					
2:Y2					
3:Y₃					
4:Y4					
5:Y₅					
6:Y6					
7:Y7					
8:Ys					
9↓Y 9					

7. Press [Calculate].



8. Your graphing calculator will display the form of the equation as (y=a+bx) and list the values for the two coefficients (a and b). Press [2<sup>nd</sup>] and [y=].

NORMAL FLOAT AUTO REAL RADIAN MP	
LinReg	
y=ax+b	
a=0.303030303	
b=12.9333333	
r <sup>2</sup> =0.1445755263	
r=0.3802308855	

9. Choose the 1<sup>st</sup> option [Plot1].

NORMAL FLOAT AUTC	) REAL	RADIAN	MP	
STAT PLOTS				
	•			
2:Plot20ff				
3:Plot30ff	_			
4:PlotsOff				
5:PlotsOn				

10. Turn on the [Plot1]. You can also change the features of your linear regression if you want: Type, mark color etc.



11. Press [graph] to see how your linear regression looks like.



## Downloading World Geography app

#### 1. Download files from

https://education.ti.com/af/software/details/en/07E60864A2E348BC965F97C16A1984C9/83 worldgeography .

Products Downloads Support Purchase Software, OS Updates and Apps			Site	and the second
Software, OS Updates and Apps				PRODE Cast
Colleman CO Designer and Sector				
Solitate OS Optimis and April - Optice Out - Activities			Down	ioads Home 🕷
World Geography App				
World Geography will allow students to access latitude, longitude, area, climate information and	monel	1020	21	
		100	0'5	
		55*	0°H	
		Brei BS1	1965 Salken	
			TAR	(ESC)
Read the License before continuing. By downloading the application you indicate your agree	ement with the terms and cor	ditions of the Lice	nse.	
Download teen		Version	Size (KB)	Apps
	10		1 01 Aug	Spaces
🛓 World Geography		0.25	111	3
Guidebooks				
🛓 World Geography Facts guidebook for 11-83 Plus ( 11-84 Plus (English)	12		120	
Features Summary				
Features Summary World Geography will allow students to access lastude, longitude, area, climate information and	morel			

2. Similarly to installing games, drag all files to your calculator.

<b>a</b> n	Convect <sup>ni</sup> CE				- 0 ×	- Geography World App	D X
	la Edit View Actions	<u>Hele</u>				Aaroedzie gebene Lidostepnanie Widok	~ O
	<b>1</b> 11	C				Progeni do parte segele telefente     Progeni do parte segele tel	Zamactaria
۱	CONNECTED CALCULAT(1)	TI-84 Plus CE	Archive: 1,795 kS available	RAM: 83 kB avei	lable	← → ~ ↑ 🖡 < Pulpit → Geography World App 🛛 🗸 🖸 Proszukaj Geograp	phy World _ P
	TI-SA Plus CE - ERIC	NAME	TYPE	521	LOCATION	WORD I PRE2 # ^ Nazwa ^ Data modyfikacji	1yp
-	05540	Y= Y2	Equation	3.0	RAM	Dokumenty 🖉 💇 workigeo.Bak 07.12.2019 10.40	Ti-84 Plus Fam
**		Y= r2	Equation	5 B	RAM	Obrazy # Typ: TI-84 Plus Family App.	
		Y= Y1	Equation	33.0	RAM	CAS Project	
		Y= rs	Equation	48	RAM	Downloading gr	
		image1	Background Image	22 kB	Archive	Linear regression	
	1	image2	Background image	22 k8	Archive	Zrzuty eleanu	
		image3	Background Image	22 kB	Archive	CineDrive	
		image4	Background Image	22 kB	Archive	🧢 Ten komputer	
		Tal Image5	Background Image	22 kB	Archive	E Dokumenty	
		Image1     Image2     Image3     Image4     Image5     eiz X     eiz Y	Real Number	9.6	RAM	Muzyka	
		012 Y	Real Number	9.8	RAM	Contracy 10	
		#12 D	Real Number	0.0	PaM	a Pobrane	
		012 0	Real Number	0.0	2444	Pulpit v c	,
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- 3. Open up your calculator and press [apps] and choose the app named "WorldGeo".
- 4. Unfortunately none of us have TI-83 Plus / TI-84 Plus, so we can not show you how the application looks like in the calculator ☺.

### The finance app

If you want to calculate the interest rate, monthly payments, duration of the loan etc. you need to use the finance app.

1. Press [apps] and choose the first option [Finance...].



2. After entering [Finance...], choose [TVM Solver...].

NORMAL FLO	AT AUTO	REAL	RADIAN	MP	
CALC VA	RS				
LETVM S	olver	•			
2∶t∨m_P	mt				
3:t∨m_I	%				
4:tvm_P	V				
5:t∨m_N					
6:t∨m_F	V				
7:npv(					
8:irr(					
9↓bal(					

- 3. N the number of total payment periods
  - I% the interest rate (as a %)

PV - the present value of the loan

PMT - the amount of the payment (must be entered as negative number)

FV - the future value of the loan when it is paid off

P/Y - the number of payments per year (monthly – 12, annually – 1)

C/Y - the number of compounding periods per year

NORMAL	FLOAT	AUTO	REAL	RADIAN	MP	<u> </u>
N=12						
PV=2	0000	)				
PMT=   FV=0	500					
P/Y=	12					
PMT:	12 END	BEG	IN			

4. For example:

You want to buy your dream, red sports car for \$40,000. The interest rate is 2.5% and you can afford a monthly payment of \$590. With the finance app you can calculate how long will it take you to pay off the loan.

N – leave empty	NORMAL FLOAT AUTO REAL RADIAN MP 👖
1% - 2.5	N= I%=2.5
PV – 40000	PV=40000 PMT= -590
PMT590	FV=0 P/Y=12
FV – 0	PMT: END BEGIN
P/Y and C/Y – 12	

5. Press [alpha] and [enter] to get the result.

NORMAL	FLOAT	AUTO	REAL	RADIAN	MP	
• N=73 I%=2 PV=4 PMT=	3.165 2.5 40000 = -590	5329 ) )	83			
FV=6 P/Y= C/Y= PMT:	) =12 =12 : <b>END</b>	BEG	IN			

6. You need to pay off the loan for about 73 months. Quite long.

#### Periodic table

1. Press [apps] and choose the 8<sup>th</sup> option [Periodic]

NORMAL	FLOAT	AUTO	REAL	RADIAN	MP	
APPL 1	CATI	ONS				
1:Fir	nance	2				
2:Cab	briJr	•				
3:Ce]	Shee	≥t				
4:Cor	nics					
5:Eas	зуDat	a				
6:Hub	<b>b</b>					
7:Ine	equa]	.z				
8:Per	iodi	.c				
9↓P19	∮Smlt	2				

2. Here you have access to all chemical elements and their properties

PERIODIO	E TAB He H	idr	PP 09(	en 1						
[ OPT	ION	s	ΓL:	IST	[ NF	-0	Τ	QL	JIT	-

3. You can for example find which elements are metals. To do it you have to press [y=], [1] and then chose which region you want to highlight. In this case metals [2].



4. To get information about periodic trends you can do it easily by pressing [y=] for options and then press [3] and choose for example atomic radius [1] to see the graph. Next you can navigate using arrows across the all elements. You see the symbol of the element at the bottom of the screen.

PERIODIC TABLE APP	PERIODIC TABLE APP	PERIODIC TABLE APP
SELECT OPTION:	ATOMIC NUMBER VERSUS:	1 1
1:HIGHLIGHT REGIONS 2:EXPORT PROPERTIES CORAPH PROPERTIES 4:SHOW EXPANDED TABLE	ATOMIC RADIUS 2:1ST IONIZATION ENERGY 3:ELECTRONEGATIVITY 4:DENSITY 5:MELTING POINT	ATOMIC RADIUS
OK ESC	OK ESC	A AS A TBL ESC

5. By pressing [zoom] you can see the list of all elements along with the symbol and them atomic numbers. And also you have the option to sort this different ways. You can do by atomic number, name or symbol. Let's say you want to go by name [2]. And you want to find gold but you don't necessarily know where it is in the periodic table. All you have to do is press [alpha] and [(] for the G and then just go down to find gold.

PERIODIC TABLE APP			PERI	ODIC TABLE	APP			
1 Hydrogen		H		SORT	ELEMENTS	BY	:	
2 Helium		He	l ř	4.07014			_	
3 Lithium		Li		1:HIOMI	IC NUMBER			
4 Beryllium		Ве						
5 Boron		в		3:SYMBC				
6 Carbon		C						
/ Nitrogen		N						
8 Oxygen		2						
9 Fluorine		F	L					
I RESET ISORTI	TBL	IQUIT	ſΟ	к 1			[ ES(	<u>c 1</u>
								_
PERIODIC TABLE APP			PERI	ODIC TABLE	APP			
PERIODIC TABLE APP Actinium	89	Ac	Ga	ODIC TABLE	APP JM	64	Gd	
PERIODIC TABLE APP Actinium Aluminum	89 13	Ac Al	Ga Ga	ODIC TABLE adoliniu allium	APP Jm	64 31	Gd Ga	
PERIODIC TABLE APP Actinium Aluminum Americium	89 13 95	Ac Al Am	Ga Ga Ge	odic TABLE adoliniu allium ermanium	APP Jm	64 31 32	Gd Ga Ge	
PERIODIC TABLE APP Actinium Aluminum Americium Antimony	89 13 95 51	Ac Al Am Sb	Ga Ga Ge	odic TABLE adoliniu allium ermanium old	APP JM	64 31 32 79	Gd Ga Ge Au	
PERIODIC TABLE APP Actinium Aluminum Americium Antimony Argon	89 13 95 51 18	AC A1 Am Sb Ar	Ga Ga Ge Ha	ODIC TABLE adoliniu allium ermanium old afnium	APP Jm N	64 31 32 79 72	Gd Ga Ge Au Hf	
PERIODIC TABLE APP Actinium Aluminum Americium Antimony Argon Arsenic	89 13 95 51 18 33	AC A1 Am Sb Ar As	Ga Ga Ga Ha Ha	ODIC TABLE adoliniu allium ermanium ad afnium assium	APP Jm n 1	64 31 32 79 72 08	Gd Ga Ge Hf Hs	
PERIODIC TABLE APP Actinium Aluminum Americium Antimony Argon Arsenic Astatine	89 13 95 51 18 33 85	AC A1 Am Sb Ar As At	Ga Ga Ge Ge Ha Ha Ha	DDIC TABLE adoliniu ermanium adolinium adolium adolium essium elium	APP Jm n 1	64 31 32 79 72 08 2	Gd Ga Ge Au Hf Hs He	
PERIODIC TABLE APP Actinium Aluminum Americium Antimony Argon Argon Arsenic Astatine Barium	89 13 95 51 18 33 85 56	AC A1 Am Sb Ar As At Ba	Ga Ga Ge Ha Ha He Ho	DDIC TABLE adoliniu ermanium Id fnium ssium lium	APP Jm n 1	64 31 32 79 72 08 2 67	Gd Ga Ge Hf Hs He Ho	
PERIODIC TABLE APP Actinium Aluminum Americium Antimony Argon Arsenic Astatine Barium Berkelium	89 13 95 51 18 33 85 56 97	AC Al Am Sb Ar As At Ba Bk	PERII Ga Ge Ha Ha Ho Hy	DDIC TABLE adoliniu ermanium Id afnium assium elium olmium adrogen	APP Jm n 1	64 31 32 79 72 08 2 67 1	Gd Ga Ge Hf Hs Ho H Ho H	

6. To see the properties of the element you should just press [enter] on the element (on the list or in the table) and there are plenty of useful information about selected element. In this case for gold.

PERIODIC TABLE APP	PERIODIC TABLE APP	PERIODIC TABLE APP
Gold	Gold	Gold
ATOMIC #: 79 SYMBOL: Au WEIGHT: 196.966569 NEUTRONS: 118 PROTONS: 79 [Xe] 4f <sup>14</sup> 5d <sup>10</sup> 6s	RADIUS: 130 1ST ION: 890 ELECTRONEG: 2.4 DENSITY: 19.3 MELTING PT: 1064.18 BOILING PT: 2836	STATE: SOLID OX STATES: 3 (1) DISCOVERED: ANCIENT
SET THELPILIST TBL QUIT	SET THELPTLIST TBL QUIT	SET THELPILIST TBL QUIT

# Downloading game

1. Download your favorite game available to play on your calculator (we recommend https://www.ti84calcwiz.com page).



2. Drag all downloaded files into your calculator (you need to have TI Connect CE installed).



3. Open up your calculator and press [prgm] and choose the program named as your game.



4. Enjoy playing games during your math lessons!

