

TI-83/84 Reference

Basics:

The ENTER key is used like the = key on scientific calculators.

The 2nd key in yellow is used for any functions written in yellow above the keys. Press the 2nd key, release, then press the next key.

The ALPHA key in green is used for any letters in green written above the keys.

To Turn Off: 2nd ON
To Make Display Darker: 2nd [up arrow] (repeat as needed)
To Make Display Lighter: 2nd [up arrow] (repeat as needed)
(battery strength is indicated by the number in the upper right corner. 9 is the weakest)

To Return to the Home Screen: 2nd **MODE** [QUIT]

Operations:

To enter an exponent like 5^3 : 5 ^ 3
To enter a negative number like -3: (-) (gray negative key)
To subtract two values like $5 - 3$: - (blue subtraction key)

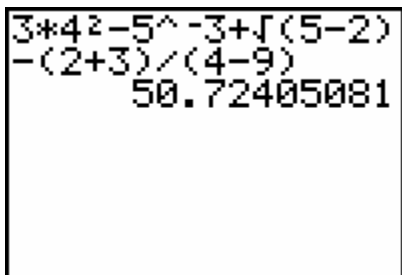
Square Root: 2nd [x^2]

Cube Root: MATH 4: $\sqrt[3]{(}$

An entire string of calculations can be entered all at once. For example:

$$3 * 4^2 - 5^{-3} + \sqrt{5-2} - \frac{2+3}{4-9}$$

Note the use of parenthesis with the square root and the fraction:



Editing:

To redisplay the previous calculation: 2nd ENTER [ENTRY]

To retrieve the answer to the previous problem: 2nd (-) [ANS]

To Graph:

$$y = 3x - 4$$

$$y = -x + 5$$

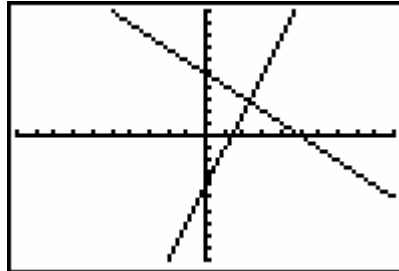
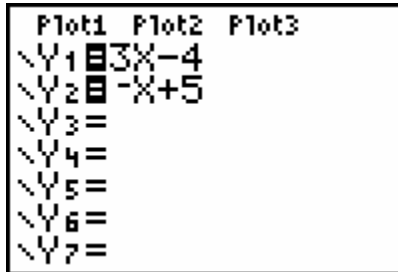
Y=

CLEAR to erase any previous equations

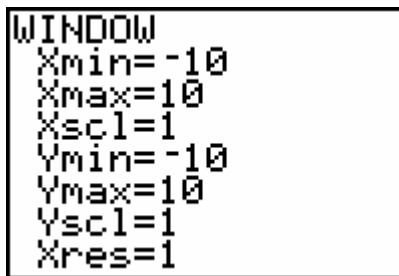
3 [X,T,Θ,n] - 4 ENTER

(-)[X,T,Θ,n] + 5 ENTER

GRAPH



To Change Graph Window:



Pre-set values:

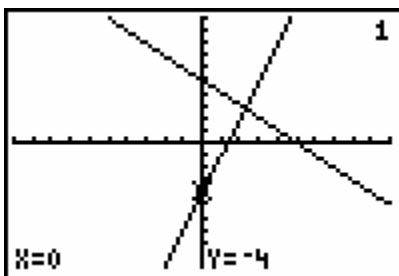
ZOOM 6: Standard [-10, 10] by [-10, 10]

ZOOM 4: Decimal [-4.7,4.7] by [-3.1, 3.1]

Any values you wish to enter: WINDOW

[Xmin, Xmax] by [Ymin, Ymax]

To Find Values on the Graph:



TRACE

(cursor is displayed with coordinates at the bottom)

Use arrows to move cursor left or right on the graph

Or up and down from one graph to another.

Enter a number to move to a specific point

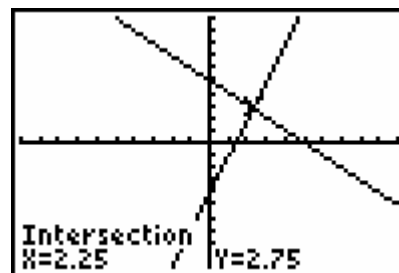
or

2nd TRACE [CALC] 1: value

enter value for x, ENTER

To Find The Intersection Point on the Graph:

enter equations for Y1 and Y2
2nd TRACE [CALC] 5: intersect
move close to intersection point
ENTER
ENTER
ENTER



To Generate a Table of Values:

Enter equation(s) using Y=
 Set up table by using 2nd WINDOW [TBLSET]
 ΔTbl is the change in the x values



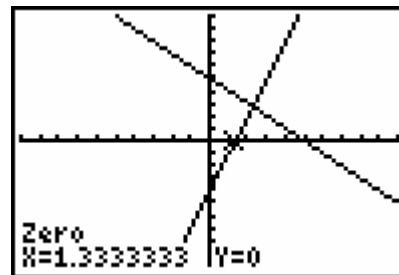
View table by using 2nd GRAPH [TABLE]

X	Y1	Y2
-5	-9	10
-4	-8	10
-3	-7	10
-2	-6	10
-1	-5	10
0	-4	10
1	-3	10

X = -5

To Find x-intercepts on a Graph:

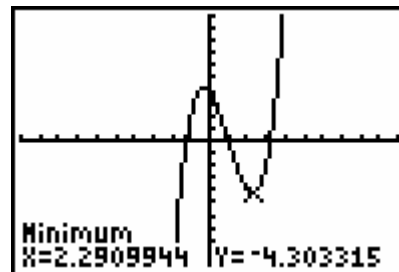
x-intercepts: 2nd TRACE [CALC] 2: zero
 move left of intercept, ENTER
 move right of intercept, ENTER
 move back close to intercept, ENTER



To Find Minimum and Maximum Points on a Graph:

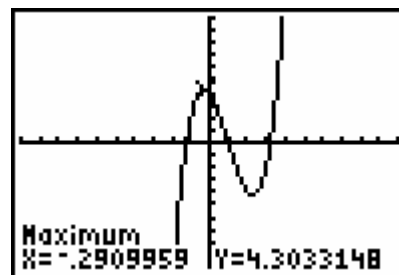
$$y = x^3 - 3x^2 - 2x + 4$$

minimum: 2nd TRACE [CALC] 3: minimum
 move left of minimum, ENTER
 move right of minimum, ENTER
 move back close to minimum,



ENTER

maximum: 2nd TRACE [CALC] 4: maximum
 move left of maximum, ENTER
 move right of maximum, ENTER
 move back close to maximum,



ENTER

Using Calculator Programs:

PRGM will list the names of programs on your calculator.

AMORT: calculates the monthly payment for a loan with compound interest

ANNUITY: calculates or solves for payment with either Future Value or Present Value of an annuity

BALANCE: calculates the balance in an account with compound interest

COMPOUND: will solve for either Balance, Principal, or Time with compound interest

DISTANCE: calculates the distance and midpoint between two points

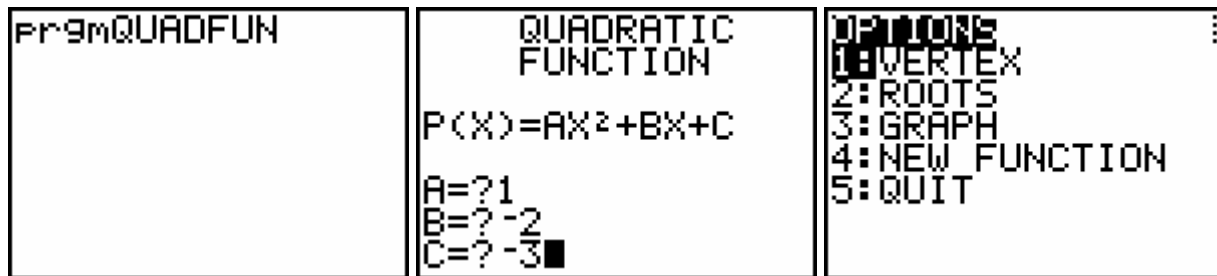
EVALUATE: evaluates the function in Y1 for any x value entered

LINES: calculates the slope and y-intercept for two entered points or a point and a slope

QUADFUN: calculates the vertex and roots (x-intercepts or solutions) for a quadratic equation

Select the program you want to run and then ENTER

QUADFUN:



Sharing Calculator Data and Programs:

Connect cable firmly to both calculators

Both people: 2nd [X,T,Θ,n] [LINK]

Person that needs the data: right arrow to RECEIVE and then ENTER

Person that has the data to send:

Select 1: All+... to send all of your data

Select 2: All-... to select items to send

Select 3: Prgm... to select programs to send

ENTER on the items to send

Right arrow to TRANSMIT and then ENTER

Calculator Exercises

Solve using your calculator, entering one calculation. Round to 5 significant digits. Remember to add parenthesis around fractions, numerators, denominators, roots and absolute values. (Also, use parenthesis instead of brackets in #12, etc.)

1) $7.5^2 + \sqrt{6.2}$

2) $4^2 - 3^2 + 2^2 - 8(1-3)$

3) $-3^4 + 3\sqrt{12.1}$

4) $5\pi(3.2 - \sqrt{11})$

5) $(6.53 \times 10^4)(2.1 \times 10^{-6})(8.3 \times 10^5)$

6) $|-18.7| - \sqrt[3]{5}$

7) $\frac{25.3^3 - 37.5}{6.48}$

8) $\frac{(4.5 \times 10^3)^2 (1.7 \times 10^{-8})}{2.3 \times 10^5}$

9) $\sqrt{8.2^2 - 5}$

10) $\frac{3.842 + 6.995}{7.15 - 5.931}$

11) $|\sqrt[3]{8.12} - 5|$

12) $[6 - 2(5-3)]^2 - 4(2)$

13) $(-6.15)^5 + 3.1^6$

14) $3\sqrt{6.5} + 4\sqrt{9.8}$

15) $\sqrt{7 - 2\sqrt{2}}$

16) $\sqrt{\left(\frac{9}{11}\right)^2 + \left(\frac{7}{11}\right)^2}$

17) $\frac{62.3^2 + 27.5^2 - 46.5^2}{2(62.3)(27.5)}$

18) $\left[\left(\frac{3}{2.52}\right)^2 + \left(\frac{5}{16.3}\right)^2\right]^3$

19) $\frac{9.611^{1.27} - 5^{-2}}{3.4^{-4.2}}$

20) $|-4^2 - 3^3|$

21) $\frac{\sqrt[3]{649} - 4.78}{3.25^4 - 5}$

22) $(7.26 \times 10^{-3})^{1/4}$

23) $(47.22)^{2/3}$

24) $\sqrt[4]{1.765}$

25) $\sqrt[5]{2.72 \times 10^8}$

26) $\sqrt[6]{97} \sqrt[5]{328}$

27) $\frac{4\sqrt[3]{321}}{\sqrt[4]{287}}$

Answers:

- 1) 58.74
- 2) 27
- 3) -70.564
- 4) -1.8319
- 5) 113820
- 6) 16.99
- 7) 2493.3
- 8) 1.4967×10^{-6}
- 9) 7.8892
- 10) 8.8901
- 11) 2.99
- 12) -4
- 13) -7910.3
- 14) 20.171
- 15) 2.0424
- 16) 1.0365
- 17) 0.72240
- 18) 3.4520
- 19) 3015.4
- 20) 43
- 21) .03639
- 22) .2919
- 23) 13.064
- 24) 1.1526
- 25) 48.631
- 26) 6.8282
- 27) 6.6541
- 28) .063295
- 29) 3.2089×10^{14}
- 30) 1.0222
- 31) -105.78
- 32) a) 4.1888 b) .42441
- 33) a) 27.5 b) .22727
- 34) a) 1.4907 b) .29814
- 35) 3.1292
- 36) 2.1649
- 37) 1.7418
- 38) .082756
- 39) .11634

28) $(1571.6)^{-\frac{3}{8}}$

29) $\frac{\sqrt[4]{5.223 \times 10^{-5}}}{(7.667 \times 10^{-4})^5}$

30) $\frac{2\sqrt{35.7} + 5.1\sqrt[4]{3.56}}{3\sqrt[3]{7.91} + 4\pi}$

31) $\frac{-67.21 - \sqrt{(-67.21)^2 - 4(0.632)(37.9)}}{2(0.632)}$

32) a) $\frac{4}{3}\pi$ b) $\frac{4}{3\pi}$

33) a) $\frac{5}{2}(4+7)$ b) $\frac{5}{2(4+7)}$

34) a) $\frac{2}{3}\sqrt{5}$ b) $\frac{2}{3\sqrt{5}}$

35) $4.7 - \frac{1}{2}\pi$

36) $\frac{2.4^2 + \frac{2}{3}\pi^2}{5.7}$

37) $\frac{4\pi - 6}{1.2\pi}$

38) $\frac{4\sqrt{2} - 5}{3\sqrt{7}}$

39) $\frac{4\sqrt{2} - 5}{3 + \sqrt{7}}$