

# TIPS AND TRICKS WITH A TI-84

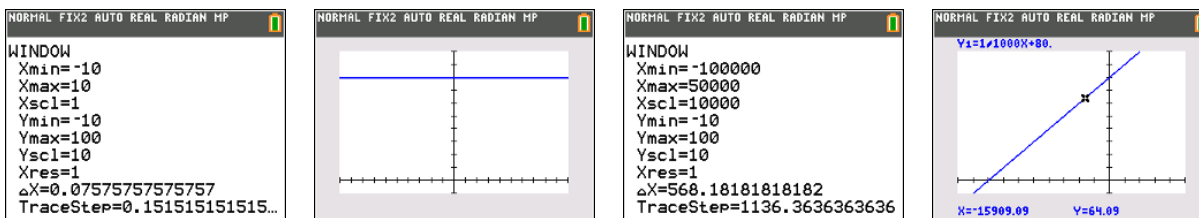
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- 1 Sketch a complete Graph of  $y = \frac{1}{1000}x + 80$  (one that displays both axis intercepts)

Using a grapher successfully requires an understanding of the mathematics. Displaying a complete graph of this function requires an understanding of the behavior of linear functions and their equations. No graph appears in the default window, but does appear when Ymax is increased. However, if only Ymax is changed, then it appears as a horizontal line. Use algebra, logic, and/or guess n check to find the x-intercept.

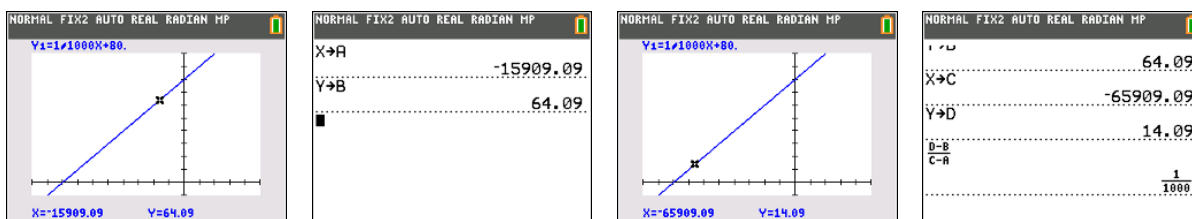


note Xscl and Yscl

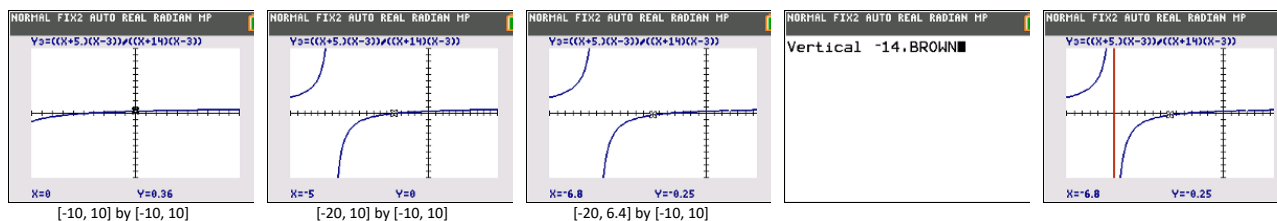
- 2 Using the equation in #1 (above), use trace to capture 2 random points and calculate slope without having to retype the coordinates.

The most recent TRACE coordinates are automatically saved by the TI-84; it's easy to transfer values needed in computations from the GRAPH screen to the HOME screen.

While in Trace mode, highlight a desired point, then press  $2^{\text{nd}}$  QUIT to return to the home screen. Store the X and Y coordinates as A and B. Return to the GRAPH screen and move the Trace cursor to a second point and store these coordinates as C and D. Calculate the slope of the line through these two points by typing  $\frac{D-B}{C-A}$ , then pressing  $\text{ENTER}$



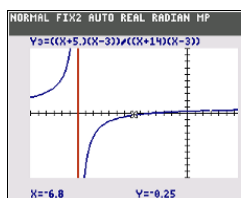
- 3 Sketch a complete graph of  $y = \frac{x^2+2x-15}{x^2+11x-42}$ . This means it needs to include all axes intercepts, all local minimums and maximums, and all discontinuities (vertical asymptotes and holes). It helps to think of it as  $y = \frac{(x+5)(x-3)}{(x+14)(x-3)}$



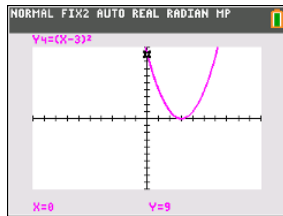
[-10, 10] by [-10, 10]

[-20, 10] by [-10, 10]

[-20, 6.4] by [-10, 10]



4 Find the zeros of  $y = (x - 3)^2$



```

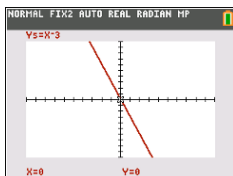
NORMAL FIX2 AUTO REAL RADIAN MP
CALCULATE
1:value
2:zero
3:minimum
4:maximum
5:intersect
6:dy/dx
7:ff(x)dx
    
```

```

NORMAL FIX2 AUTO REAL RADIAN MP
ERROR: NO SIGN CHANGE
1:Quit

Calculations are not
detecting a sign change
to give an estimated
result for the allowed
number of iterations.
    
```

5 Evaluate  $9-5$ ,  $3^2-5$ , and graph  $y = x - 3$  using the negation key instead of the subtraction key.



```

NORMAL FIX2 AUTO REAL RADIAN MP
Plot1 Plot2 Plot3
Y1=1/1000 X+80.
Y2=((X+5)(X-3))
Y3=(X-3)^2
Y4=X-3
Y5=X-3
Y6=
Y7=
    
```

```

NORMAL FIX2 AUTO REAL RADIAN MP
9-5
    
```

```

NORMAL FIX2 AUTO REAL RADIAN MP
ERROR: SYNTAX
1:Quit
2:Goto

Check all arguments
entered.
Press + on menu item for
Catalog Help.
    
```

```

NORMAL FLOAT AUTO REAL RADIAN MP
9-5 Error:
3^2-5 :45.
3^2-5 :4.
    
```

6 Home Screen Programming for learning about exponential growth and compounding:  
Build a finance table on the HOME screen.

```

NORMAL FIX2 AUTO REAL RADIAN MP
{0.100}
(0.00 100.00)
{Ans(1)+1,Ans(2)*1.05}
(1.00 105.00)
{Ans(1)+1,Ans(2)*1.05}
(2.00 110.25)
{Ans(1)+1,Ans(2)*1.05}
(3.00 115.76)
    
```

7 Evaluate  $100(10^{12} + 7 - 10^{12})$ , then  $100(10^{15} + 7 - 10^{15})$ . No associativity!

```

HISTORY
10^9 1000000000
10^0 1
10^10+7 1E10
10^12+7 1.000000001E10
10^12+7 1E12
    
```

```

NORMAL FLOAT AUTO REAL RADIAN MP
100(10^12+7-10^12) 700
100(10^15+7-10^15) 0
100(10^15-10^15+7) 700
    
```