



## To Find Intersection Pts:

1. Graph both equations.
2. Use CALC menu (2<sup>nd</sup> TRACE)  
Choose #5 Intersect
3. Move near the intersect location.
4. Simply press <ENTER> 3 times to reveal the answer.

If you are looking for more than one intersection point, repeat this process.

## Check Inverse:

Enter your algebraic inverse in Y1. Graph. Use DRAW #8DrawInv to verify it is correct.

To see  $\sqrt{-25} = 5i$ , use  $a + bi$  mode.

**Calculator ID #:**  
Choose 2<sup>nd</sup> MEM,  
#1 About  
ID\*\*\*\*\_\*\*\*\*\_\*\*\*\*

## Functions:

$Y_1 = f(x)$  and  $Y_2 = g(x)$   
 $(f + g)(x) \rightarrow Y_3 = Y_1 + Y_2$   
 $(f - g)(x) \rightarrow Y_3 = Y_1 - Y_2$   
 $(f \cdot g)(x) \rightarrow Y_3 = Y_1 Y_2$   
 $(f / g)(x) \rightarrow Y_3 = Y_1 / Y_2$   
 Composition:  
 $(f \circ g)(x) \rightarrow Y_3 = Y_1(Y_2)$

**Diagnostics ON:** must be ON to see correlation coefficient,  $r$ .  
 1. MODE – StatDiagnostics: ON  
 or 2. CATALOG, ALPHA D, DiagnosticOn, ENTER, ENTER

**To Get Residuals:** After preparing a regression equation (using  $L_1$  and  $L_2$ ), residuals are stored in a list called RESID.

To plot residuals:

1. Go to top of  $L_3$ , press ENTER.
2. Go to LIST (2<sup>nd</sup> STAT) – choose #7 RESID, press ENTER.
3. Go to STAT PLOT, Plot 1, ON
4. Type: first icon (scatter plot)
5. XList:  $L_1$  YList:  $L_3$
6. ZOOM 9:ZoomStat

## Logs and Exponents:

1. The LOG key is log base 10.
2. To enter:  $\log_4 64$  use  $\frac{\log 64}{\log 4}$
3.  $27^{\frac{1}{3}}$  is  $27^{(1/3)}$  remember ( )

**Summations:**  $\sum_{k=2}^7 (2k + 2)$

Enter sum(seq(2x+2, x, 2, 7, 1)

- 2<sup>nd</sup> STAT(LIST) – MATH - #5 sum
  - 2<sup>nd</sup> STAT(LIST) – OPS - #5 seq
- The format for seq: *expression, variable, starting value, ending value, increment.*

## To Get Statistical Information:

1. Place data in Lists: STAT → EDIT
2. Engage 1-Variable Statistics: STAT → CALC #1 1-VAR STATS
3. On Home Screen indicate list containing the data: 1-VAR STATS  $L_1$

$\bar{x}$  = mean

$s_x$  = the sample standard deviation

$\sigma_x$  = the population standard deviation

$n$  = the sample size (# of pieces of data)

$Q_1$  = data at the first quartile

**med** = data at the median (second quartile)

$Q_3$  = data at the third quartile

## To Get Scatter Plots and Regressions

(Linear, Quadratic, Exponential, Power, etc):

1. Place data in Lists: STAT → EDIT
2. Graph scatter plot: STAT PLOT #1 <ENTER> Choose ON. Choose the symbol for scatter plot, choose  $L_1$ ,  $L_2$ , choose mark
3. To graph, choose: ZOOM #9
4. To get regression equation: STAT → CALC #4 Lin Reg( $ax+b$ ) (or whichever regression is needed)
5. On Home Screen: LinReg( $ax+b$ )  $L_1$ ,  $L_2$ ,  $Y_1$
6. to see graph – GRAPH

To get  $Y_1$  to appear:  
 VARS → Y-VARS Choose FUNCTION,  $Y_1$   
**OR** ALPHA F4

## Normal Distributions DISTR(2<sup>nd</sup> VARS)

1. normalcdf (lower, upper, mean, s.d.) Finds prob. on cumulative interval.
  - to enter  $\infty$ , use  $10^{99}$  or  $1 \text{ EE } 99$ .
2. normalpdf(x, mean, s.d.) Graphs the normal distribution.
  - Window:  $X_{\min} = \text{mean} - 3 \text{ s.d.}$ ;  $X_{\max} = \text{mean} + 3 \text{ s.d.}$ ;  $X_{\text{scl}} = \text{s.d.}$   
 $Y_{\min} = 0$ ;  $Y_{\max} = 1/(2 \text{ s.d.})$ ;  $Y_{\text{scl}} = 0$
3. ShadeNorm(lower, upper, mean, s.d.) To see area and % under curve.
  - must graph using normalpdf first, or you won't see your shading.