Variables	Tests	Intervals	LinRegTTest, ANOVA	VARS Menu
estimated sample proportion	$\hat{p}$	$\hat{p}$		TEST
estimated sample proportion for population 1	$\hat{p}$**1**	$\hat{p}$**1**		TEST
estimated sample proportion for population 2	$\hat{p}$**2**	$\hat{p}$**2**		TEST
confidence interval pair		**lower, upper**		TEST
mean of x values	$\bar{x}$	$\bar{x}$		XY
sample standard deviation of x	**Sx**	**Sx**		XY
number of data points	**n**	**n**		XY
standard error about the line			**s**	TEST
regression/fit coefficients			**a, b**	EQ
correlation coefficient			**r**	EQ
coefficient of determination			**r2**	EQ
regression equation			**RegEQ**	EQ

Note: The variables listed above cannot be archived.

Distribution Functions

DISTR menu

Note: Selection of any of the DISTR functions will take the user to a wizard screen for that function.

To display the DISTR menu, press [2nd] [DISTR].

DISTR DRAW	
1: normalpdf(	*nn* probability density function
2: normalcdf(	*nn* cumulative distribution function
3: invNorm(	Inverse cumulative normal distribution
4: invT(	Inverse cumulative Student-*t* distribution
5: tpdf(	Student-*t* probability density
6: tcdf(	Student-*t* distribution probability
7: χ^2pdf(	Chi-square probability density
8: χ^2cdf	Chi-square distribution probability
9: **F**pdf(	**F**probability density
0: **F**cdf(	**F**distribution probability

DISTR DRAW	
`A: binompdf(`	Binomial probability
`B: binomcdf(`	Binomial cumulative density
`C: poissonpdf(`	Poisson probability
`D: poissoncdf(`	Poisson cumulative density
`E: geometpdf(`	Geometric probability
`F: geometcdf(`	Geometric cumulative density

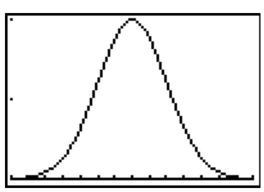
Note: -1E99 and 1E99 specify infinity. If you want to view the area left of *upperbound*, for example, specify *lowerbound*= -1E99.

normalpdf(

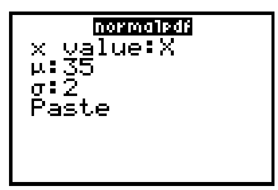
normalpdf(computes the probability density function (**pdf**) for the normal distribution at a specified x value. The defaults are mean μ=0 and standard deviation σ=1. To plot the normal distribution, paste **normalpdf(** to the Y= editor. The probability density function (pdf) is:

$$f(x) = \frac{1}{\sqrt{2\pi}\sigma} e^{-\frac{(x-\mu)^2}{2\sigma^2}}, \sigma > 0$$

normalpdf(x[,μ,σ]**)**



Note: For this example,
Xmin = 28
Xmax = 42
Xscl = 1
Ymin = 0
Ymax = .2
Yscl = .1

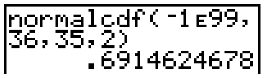


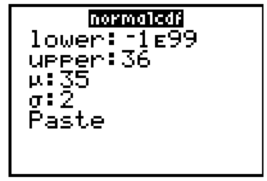
Note: For plotting the normal distribution, you can set window variables **Xmin** and **Xmax** so that the mean μ falls between them, and then select **0:ZoomFit** from the **ZOOM** menu.

normalcdf(

normalcdf(computes the normal distribution probability between *lowerbound* and *upperbound* for the specified mean μ and standard deviation σ. The defaults are μ=0 and σ=1.

normalcdf(*lowerbound*,*upperbound*[,μ,σ]**)**

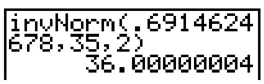


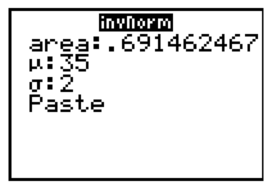


invNorm(

invNorm(computes the inverse cumulative normal distribution function for a given *area* under the normal distribution curve specified by mean μ and standard deviation σ. It calculates the *x* value associated with an *area* to the left of the *x* value. $0 \le area \le 1$ must be true. The defaults are μ=0 and σ=1.

invNorm(*area*[,μ,σ]**)**

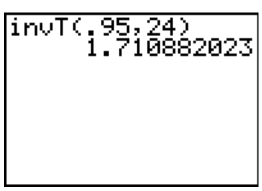


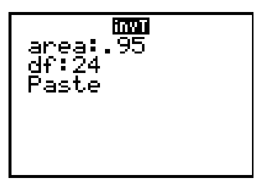


invT(

invT(computes the inverse cumulative Student-t probability function specified by Degree of Freedom, df for a given Area under the curve.

invT(*area,df***)**



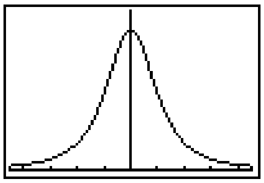


tpdf(

tpdf(computes the probability density function (**pdf**) for the Student-*t* distribution at a specified *x* value. *df* (degrees of freedom) must be > 0. To plot the Student-*t* distribution, paste **tpdf(** to the Y= editor. The probability density function (**pdf**) is:

$$f(x) = \frac{\Gamma[(df+1)/2]}{\Gamma(df/2)} \frac{(1+x^2/df)^{-(df+1)/2}}{\sqrt{\pi df}}$$

tpdf(x,df**)**

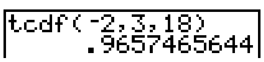


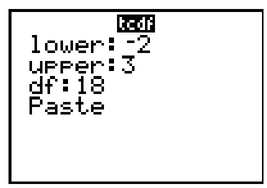
Note: For this example,
Xmin = ⁻4.5
Xmax = 4.5
Ymin = 0
Ymax = .4

tcdf(

tcdf(computes the Student-t distribution probability between *lowerbound* and *upperbound* for the specified *df* (degrees of freedom), which must be > 0.

tcdf(*lowerbound*,*upperbound*,*df***)**



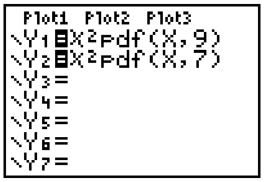


χ^2pdf(

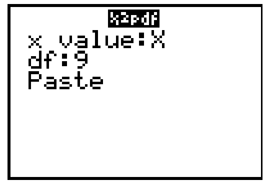
χ^2**pdf(** computes the probability density function (**pdf**) for the χ^2 (chi-square) distribution at a specified x value. *df* (degrees of freedom) must be an integer > 0. To plot the χ^2 distribution, paste χ^2**pdf(** to the Y= editor. The probability density function (**pdf**) is:

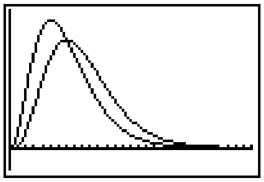
$$f(x) = \frac{1}{\Gamma(df/2)}(1/2)^{df/2}x^{df/2-1}e^{-x/2}, x \geq 0$$

χ^2**pdf(**x,*df***)**



Note: For this example,
Xmin = 0
Xmax = 30
Ymin = ⁻.02
Ymax = .132

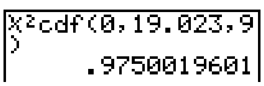


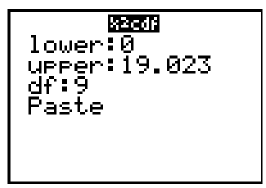


χ^2cdf(

χ^2**cdf(** computes the χ^2 (chi-square) distribution probability between *lowerbound* and *upperbound* for the specified *df* (degrees of freedom), which must be an integer > 0.

χ^2**cdf(***lowerbound*,*upperbound*,*df***)**





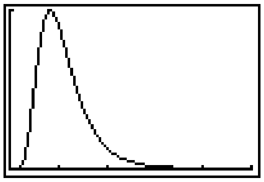
Fpdf(

Fpdf(computes the probability density function (**pdf**) for the **F** distribution at a specified x value. *numerator df* (degrees of freedom) and *denominator df* must be integers > 0. To plot the **F** distribution, paste **Fpdf(** to the Y= editor. The probability density function (**pdf**) is:

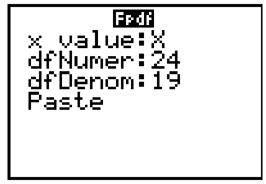
$$f(x) = \frac{\Gamma[(n+d)/2]}{\Gamma(n/2)\Gamma(d/2)}\left(\frac{n}{d}\right)^{n/2} x^{n/2-1}(1+nx/d)^{-(n+d)/2}, x \geq 0$$

where n = numerator degrees of freedom
d = denominator degrees of freedom

Fpdf(*x*,*numerator df*,*denominator df***)**



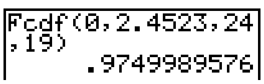
Note: For this example,
Xmin = 0
Xmax = 5
Ymin = 0
Ymax = 1

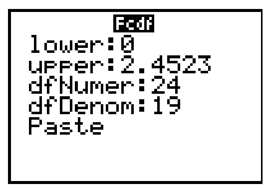


Fcdf(

Fcdf(computes the **F** distribution probability between *lowerbound* and *upperbound* for the specified *numerator df* (degrees of freedom) and *denominator df*. *numerator df* and *denominator df* must be integers > 0.

Fcdf(*lowerbound*,*upperbound*,*numerator df*,*denominator df***)**





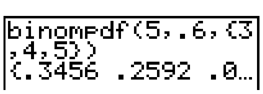
binompdf

binompdf(computes a probability at *x* for the discrete binomial distribution with the specified *numtrials* and probability of success (*p*) on each trial. *x* can be an integer or a list of integers. $0 \le p \le 1$ must be true. *numtrials* must be an integer > 0. If you do not specify *x*, a list of probabilities from 0 to *numtrials* is returned. The probability density function (**pdf**) is:

$$f(x) = \binom{n}{x} p^x (1-p)^{n-x}, x = 0,1,...,n$$

where n = *numtrials*

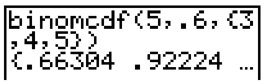
binompdf(*numtrials*,*p*[,*x*]**)**

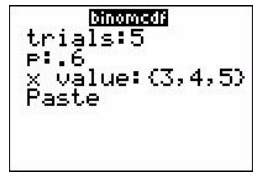


binomcdf(

binomcdf(computes a cumulative probability at x for the discrete binomial distribution with the specified *numtrials* and probability of success (p) on each trial. x can be a real number or a list of real numbers. $0 \le p \le 1$ must be true. *numtrials* must be an integer > 0. If you do not specify x, a list of cumulative probabilities is returned.

binomcdf(*numtrials*,*p*[,*x*]**)**



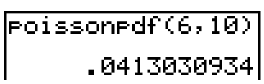


poissonpdf(

poissonpdf(computes a probability at x for the discrete Poisson distribution with the specified mean μ, which must be a real number > 0. x can be an integer or a list of integers. The probability density function (**pdf**) is:

$$f(x) = e^{-\mu}\mu^{x}/x!, x = 0,1,2,...$$

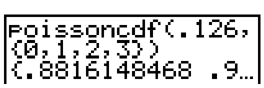
poissonpdf(μ,x**)**



poissoncdf(

poissoncdf(computes a cumulative probability at x for the discrete Poisson distribution with the specified mean μ, which must be a real number > 0. x can be a real number or a list of real numbers.

poissoncdf(μ,x**)**

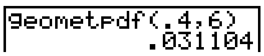


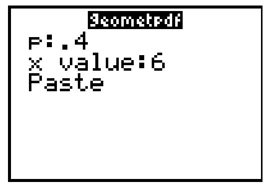
geometpdf(

geometpdf(computes a probability at x, the number of the trial on which the first success occurs, for the discrete geometric distribution with the specified probability of success p. $0 \le p \le 1$ must be true. x can be an integer or a list of integers. The probability density function (pdf) is:

$$f(x) = p(1-p)^{x-1}, x = 1,2,...$$

geometpdf(p,x**)**

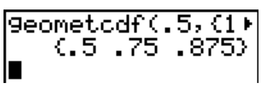




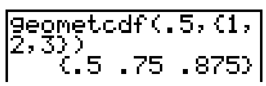
geometcdf(

geometcdf(computes a cumulative probability at x, the number of the trial on which the first success occurs, for the discrete geometric distribution with the specified probability of success p. $0 \le p \le 1$ must be true. x can be a real number or a list of real numbers.

geometcdf(p,x**)**



MathPrint™



Classic

Distribution Shading

DISTR DRAW Menu

To display the **DISTR DRAW** menu, press [2nd] [DISTR] [▸]. **DISTR DRAW** instructions draw various types of density functions, shade the area specified by *lowerbound* and *upperbound*, and display the computed area value.

Selecting an item from the DIST DRAW menu opens a wizard for the input of syntax for that item. Some of the arguments are optional. If an argument is not optional, the cursor will not move on to the next argument until a value is entered.

If you access any of these functions through CATALOG, the command or function will paste and you will be required to fill in the arguments.

To clear the drawings, select **1:ClrDraw** from the **DRAW** menu (Chapter 8).